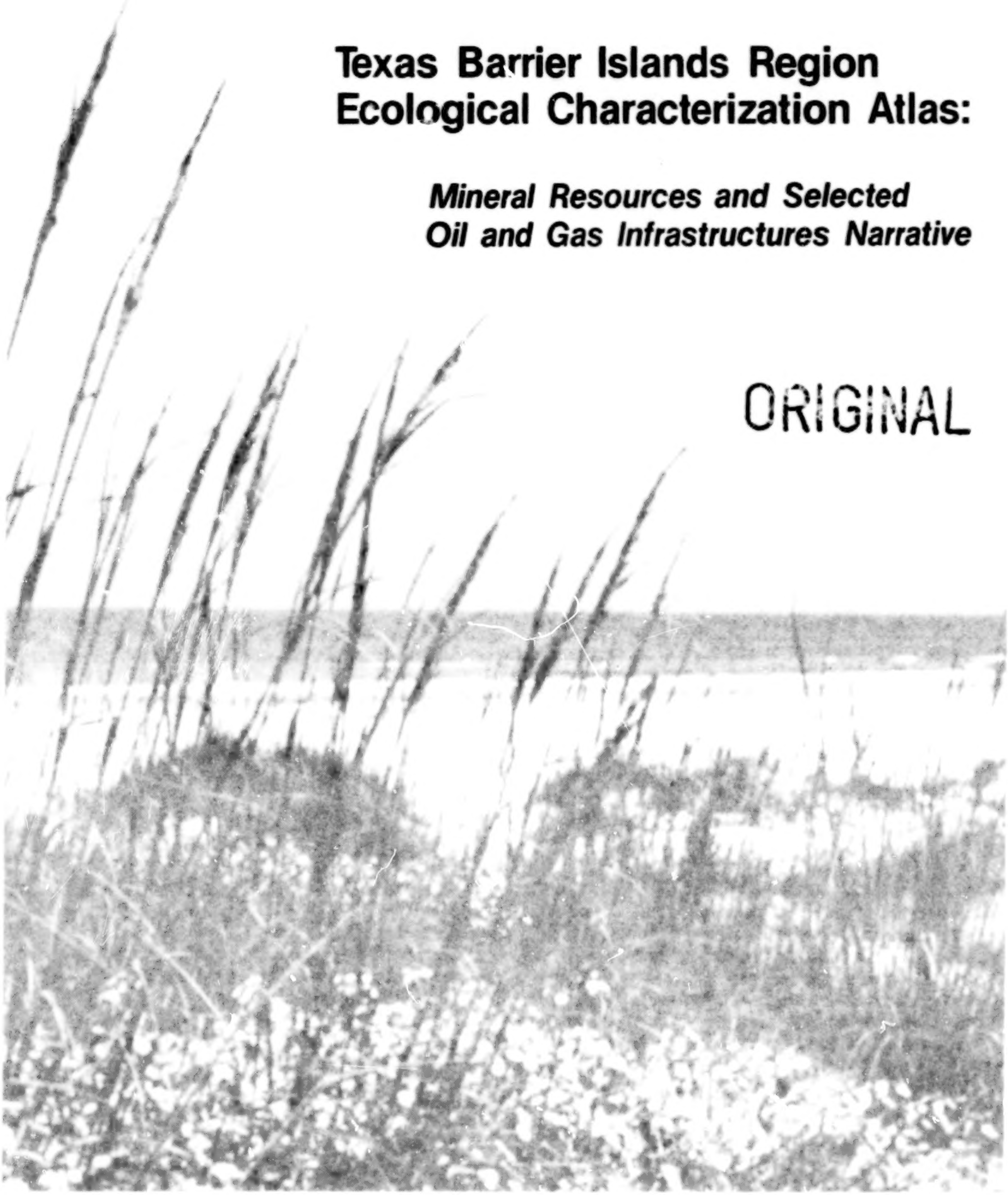
MAY 9 '85
COMPLETED
99
I 49.89: 82/17
611-R-81

FWS/OBS–82/17 MMS 84-0005
February 1984

Texas Barrier Islands Region Ecological Characterization Atlas:

Mineral Resources and Selected Oil and Gas Infrastructures Narrative

ORIGINAL



Minerals Management Service
Fish and Wildlife Service

U.S. Department of the Interior

FWS/OBS-82/17
MMS 84-0005
February 1984

TEXAS BARRIER ISLANDS REGION ECOLOGICAL CHARACTERIZATION ATLAS: Mineral Resources and Selected Oil and Gas Infrastructures Narrative

by

Clarissa T. Kimber
Kenneth L. White
Fred S. Hendricks
Texas A&M University
FE Box H
College Station, TX 77843

Project Officers

B.D. King III
U.S. Fish and Wildlife Service
Contract Administration Office, Region 2
Austin, TX 78701

and

James B. Johnston
U. S. Fish and Wildlife Service
National Coastal Ecosystems Team
NASA Slidell Complex
Slidell, LA 70458

Contract 14-16-0009-79-126

This study was co-sponsored by the
Minerals Management Service
U. S. Department of the Interior

Performed for

National Coastal Ecosystems Team
Division of Biological Services
Research and Development
Fish and Wildlife Service
U. S. Department of the Interior
Washington, DC 20240

DISCLAIMER

The opinions, findings, conclusions, or recommendations expressed in this report/product are those of the authors and do not necessarily reflect the views of the Fish and Wildlife Service's Division of Biological Services, the Minerals Management Service or the U. S. Department of the Interior, nor does mention of trade names or commercial products constitute endorsement or recommendation for use by the Federal Government.

This report should be cited as:

Kimber, C.T., K.L. White, and F.S. Hendricks. 1984. Texas Barrier Island Region ecological characterization atlas: minerals resources and selected oil and gas infrastructures narrative. U.S. Fish Wildl. Serv. FWS/OBS-82/17. Minerals Management Service Rep. 84-0005. 85 pp.

PREFACE

The purpose of this study, begun in October of 1979, is to cartographically render those known aspects of the natural and cultural features of the Texas coastal areas which might influence land use decisions. The study uses an ecological characterization approach in which the characterizations provide descriptions of the socioeconomic features, biological resources, and physical processes that make up a particular coastal ecosystem. This narrative and its accompanying maps on minerals resources and oil and gas infrastructures are one set in a series of three constituting the Texas Barrier Islands Region Ecological Characterization Atlas sponsored by the Minerals Management Service and Fish and Wildlife Service of the United States Department of the Interior. Other map sets and narratives available are Biological Resources (FWS/OBS-82/16) and Socioeconomic and Natural Features (FWS/OBS-82/15). The maps of the Mineral Resources and Selected Oil and Gas Infrastructures are designed to supplement the textual materials contained in Texas Barrier Islands Region Ecological Characterization: A Socioeconomic Study (Vol. 1: Synthesis Paper, FWS/OBS-80/19; Vol. 2: Data Appendix, FWS/OBS-80/20; U.S. Fish and Wildlife Service and Bureau of Land Management, August 1980).

Comments about, or requests for this publication should be directed to:

Information Transfer Specialist
National Coastal Ecosystems Team
U. S. Fish and Wildlife Service
NASA-Slidell Computer Complex
1010 Gause Blvd.
Slidell, LA. 70458.

SUMMARY

The people of the United States have benefited greatly from the contributions made from their coastal regions. The 2,500 miles of Texas shoreline, together with the lands and waters adjacent to that shoreline, provide major contributions to the economy, the living space, and recreation which enhance the quality of life of the people in the Gulf Coast Region. Increasingly rapid development of the region suggests that coastal areas must be carefully managed if that development is to continue and the public interests are to be preserved. This study, a portion of the Texas Barrier Islands Region Ecological Characterization Atlas (TBIRECA), is part of the contribution of the U. S. Fish and Wildlife Service (FWS) to natural resource planning policy for the western Gulf of Mexico coast.

The Texas coast is almost entirely protected by barrier islands and peninsulas. Behind these are located the bays and estuaries that have created the exceptionally long coast line as well as the marshes and lagoons that support a rich wildlife resource. The Texas Barrier Islands Region (TBIR) characterization study area extends along the coast from High Island on the eastern edge of Chambers County to the mouth of the Rio Grande. The area extends roughly 40 mi (65 km) onshore and approximately 9 mi (3 leagues) offshore.

This study maps the oil and gas production activities and selected mineral resources as they are distributed in that region. It stands alone as a TBIRECA map set, but it can also be considered a cartographic supplement to Texas Barrier Islands Region Ecological Characterization: A Socioeconomic Study (Liebow et al. 1980). Sixteen map overlays have been prepared to cover the more than 50,000 km^2 area of the TBIR. The base maps (at a scale of 1:100,000) extend one degree of longitude in the east-west dimension and thirty minutes in the north-south dimension.

Mineral Resources and Oil and Gas Infrastructures map overlays show the distribution of the known mineral deposits including oil and gas fields, sulphur deposits, geopressured-geothermal areas, and groundwater sources. They also show the pits and quarries for sand, gravel, clay, and dirt. The pipelines for crude oil and natural gas, both onshore and offshore, are delineated with associated pumping, metering, and compressor stations. Refineries, gas processing plants, storage facilities, offshore platforms and platform fabrication yards, terminals, and dock facilities have also been mapped. The helicopter service centers have been recorded.

The mapped oil and gas fields are roughly in two bands paralleling the coast. One, the Frio Trend, lies 10-25 mi (16-40 km) inland and the other, the Vicksburg Trend, lies 25-40 mi (40-65 km) inland extending from the eastern boundary of the TBIR area to Kenedy County.

Some small production comes from deposits in the Rio Grande Valley. Galveston, Trinity, Nueces, and Corpus Christi Bays contain most of the fields exploited in bay waters although all Texas bays have exploitable fields. The Gulf waters exploited out to the 3-league line are largely offshore from Galveston, Brazoria, and Matagorda Counties.

The distribution of onshore and offshore oil and gas production facilities and exploration activity is widespread. Pipelines, stations, or other installations occur in every county of the coast. The principal activity, however, is concentrated in the Houston-Galveston area, the Freeport-Bay City area, Port Lavaca area, and Corpus Christi Bay area. Most of the major refining areas are in the upper coastal region (particularly the Galveston-Houston area and the Freeport-Bay City area), but the Corpus Christi-Aransas Pass area is a significant one which is growing in importance. The map overlays containing the heavy concentrations of oil and gas pipelines are on the Anahuac, Angleton, Galveston, and Houston sheets in the northern portion of the study area and the Beeville, Freeport, and Corpus Christi map overlays in the central portion of the study area. The 21 oil refineries are more localized than the 88 gas processing plants. The gas plants are found in 15 of the 16 quadrangle areas while the refineries are restricted to 7 quadrangle areas. The present expansion of both types of facilities has been in areas previously having such enterprises.

There are six mobile rig and offshore platform construction yards and five other construction yards in the Region. In the northern part of the TBIR are Todd Shipyards (Galveston Quadrangle) and Brown and Root in Bayou Harbor (Houston Quadrangle). Baker Marine is in the mid-coast Corpus Christi Quadrangle area, as is the Brown and Root Ingleside-Aransas Pass plant. Marathon Le Tourneau is located in the southernmost Brownsville quadrangle.

Construction materials (sand, gravel, clay and dirt) are available along the coast, but not in quantity sufficient for current and future demands in the TBIR area. Most of the gravel produced comes from the inland margins of the study area between 30 and 50 mi inland along the terraces of the major streams. The pits and quarries shown on the map overlays represent active operations and some inactive ones which have not been distinguished from the active ones on these maps. Industrial sands are available in the TBIR, but most require upgrading and beneficiation to qualify for industrial use and so have not been much exploited. Common clays are used in the manufacture of brick and tile. Most of these are unsuitable for high-grade structural clay products (McGowen et al. 1976).

Sulphur is associated with the caprock of some salt domes. Fifteen of the shallow-depth, coastal salt domes originally contained commercial deposits of native sulphur. These are largely in the upper portion of the coastal region of Texas. The only active domes for sulphur mining are Boling Dome in Wharton County and Long Point Dome in Fort Bend County on the Angleton Quadrangle. These active sulphur mine deposits have been mapped.

The coastal area contains the most extensive and, by volume, the most significant geothermal sources of Texas. These are in seven geopressured-geothermal fairways within the Frio Formation extending from West Bay (Brazoria Fairway) to Cameron County (Hidalgo Fairway). Test wells have been dug, but exploitation is still in the exploratory phase.

Groundwater sources are widespread but increasingly subject to drawdown leading to possible salt water instrusions near the coast, and to collapse of pore space inland. All municipalities with large populations and industrial establishments are looking to sources of water outside the TBIR area. Petroleum refining and petrochemical processing facilities continue to be the major water users.

This report was submitted in fulfillment of Contract Number 14-16-0009-79-126 by the U. S. Fish and Wildlife Service under the sponsorship of the Division of Biological Services. U. S. Fish and Wildlife Service work was completed August 31, 1982.

CONTENTS

Page

PREFACE.. iii
SUMMARY.. iv
ACKNOWLEDGMENTS.. viii

INTRODUCTION... 1
REFERENCES... 14
MAP NARRATIVE DETAILS.. 20
    Allyns Bight Quadrangle (Corpus Christi NE)................ 20
    Anahuac Quadrangle (Houston NE)............................ 22
    Angleton Quadrangle (Houston SW)........................... 29
    Baffin Bay Quadrangle (Corpus Christi SW).................. 33
    Beeville Quadrangle (Beeville SW).......................... 36
    Brownsville Quadrangle (Brownsville N/2 of S/2)............ 42
    Corpus Christi Quadrangle (Corpus Christi NW).............. 44
    El Campo Quadrangle (Seguin SE)............................ 54
    Freeport Quadrangle (Bay City NW).......................... 57
    Galveston Quadrangle (Houston SE).......................... 60
    Goliad Quadrangle (Beeville NW)............................ 64
    Harlingen Quadrangle (Brownsville S/2 of N/2).............. 67
    Houston Quadrangle (Houston NW)............................ 69
    Port Lavaca Quadrangle (Beeville NE)....................... 74
    Port Mansfield Quadrangle (Brownsville N/2 of N/2)......... 79
    San Antonio Bay Quadrangle (Beeville SE)................... 81

ACKNOWLEDGMENTS

The data compiled on these maps came from a great variety of sources. Recent compilations of oil and natural gas pipelines published by Texas state agencies and unpublished files made available by officials of state agencies greatly facilitated the mapping effort. Colleagues in business and industry have provided generously from their publications and data files. Only the generosity of many individuals made it possible to compile on one map information widely scattered in a variety of published and unpublished sources. We are especially indebted to the following people and their respective agencies:

Adams, Susan, Energy Information Specialist, Center for Energy and Mineral Resources, Texas A&M University, College Station, Texas 77843.

Aston, LaNell, Records Division, General Land Office, Stephen F. Austin Building, 1700 N. Congress Avenue, Austin, Texas 78701.

Butler, Kent S., Urban Planning Department, University of Texas at Austin, Austin, Texas 78712.

Clough, F. L. President, Helicopter Safety Advisory Conference, Tenneco, Inc., P. O. Box 2511, Houston, Texas 77001.

Colunga, Laura, Managing Editor, Marine Information Service, Texas A&M University, Sea Grant College Program, College Station, Texas 77843.

Ebaugh, Glenn M., Corporate Development, Sabine Offshore Service, Inc., P. O. Box 405, Sabine Pass, Texas 77655.

Forbes, Herman, Director, Surveying Division, General Land Office, Stephen F. Austin Building, 1700 N. Congress Avenue, Austin, Texas 78701.

Green, Rebecca, Coastal Management Program, General Land Office, 1700 N. Congress Avenue, Austin, Texas 78701.

Handley, Larry, Geographer, Offshore Continental Shelf Office, Minerals Management Service, New Orleans, Louisiana 70123.

Hollin, Dewayne, Marine Business Management Specialist, Sea Grant College Program, Texas A&M University, College Station, Texas 77843.

Horn, Edward L., Communications Manager and Editor, Port of Houston Magazine, Port of Houston Authority, P. O. Box 2562, Houston, Texas 77001.

Johnson, Robert D. "Bob" Jr., Facility Chief, Flight Service Station, College Station, Texas, Drawer FA, College Station, Texas 77840.

Jordan, Juanita, Secretary to Deputy Regional Director, Federal Aviation Administration, Department of Transportation, P. O. Box 1689, Fort Worth, Texas 76101.

Kahla, Peggy A., Dewitt & Company, Inc., 3650 Dresser Tower, 601 Jefferson Street, Houston, Texas 77002.

Menzel, Elbert, General Land Office, 1700 N. Congress Avenue, Austin, Texas 78701.

Miller, Mrs. Alice, Audit & Permits, Texas Railroad Commission, 1124 S. Interstate 35, Room 213, Austin, Texas 78702.

Plomarity, Harry G., Port Director, Port of Corpus Christi, 222 Power Street, P. O. Box 1541, Corpus Christi, Texas 78403.

Ramirez, Reynaldo, Harbormaster, Port of Brownsville, P. O. Box 3070, Brownsville, Texas 78520.

Ross, Robert, Harbormaster, Port of Galveston, Galveston, Texas 77550.

Russell, Jerry, Administrative Assistant, Administrative Services, Texas Railroad Commission, Austin, Texas 78702.

Sanchez, Rubin, Texas Natural Resources Information System, Austin, Texas 78701.

Stanley, Miles F. and Robert W. Evans, Gas Supply Department, Transco Companies, Inc., P. O. Box 1396, 2700 S. Post Oak Rd., Houston, Texas 77001.

Stubbs, Steve, Administer of Technical Programs, Land Resources Program, General Land Office, 1700 N. Congress, Austin, Texas 78701.

Taylor, Neil, DeWitt Graphics, 3660 Dresser Tower, 601 Jefferson Street, Houston, Texas 77002.

White, Lonnie, Whico Atlas Company, P. O. Box 25143, Houston, Texas 77005.

Whiting, Dr. Robert, Petroleum Engineering Department, Texas A&M
    University, College Station, Texas 77843.

We also thank the many people who aided in the compilation and provided the cartographic and editorial expertise for the preparation of the maps. Numerous individuals of Texas A&M University and of the Texas A&M Research Foundation were invaluable in helping us complete the goals of the project.

INTRODUCTION

The study area extends from the eastern end of East Bay, Chambers County, Texas, to the Texas-Mexico border (Figure 1). The offshore boundary is the State-Federal demarcation line, and the inland boundary is about 65 km (40 mi) inland, including, among others, the coastal counties of Chambers, Galveston, Brazoria, Matagorda, Calhoun, Aransas, Refugio, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron (Figure 2).

This study maps the oil and gas production activities and selected mineral resources as they are distributed in the Texas Barrier Island Region. The themes of these maps are grouped into two major parts: selected items of oil and gas infrastructures, and mineral resources. The oil and gas infrastructure section is subdivided into:

1) Pipelines - including onshore and offshore lines for the transport of crude oil and natural gas;
2) Transfer, processing, and storage facilities - including refineries, gas processing plants, compressors, pumping and metering stations, and storage facilities; and
3) Port and offshore facilities - including platforms, platform fabrication yards, dock facilities, and helicopter services.

The mineral resources section is subdivided into:

1) Oil and gas fields;
2) Sand, clay, and gravel pits;
3) Sulphur wells or mines;
4) Geopressured-geothermal areas; and
5) Groundwater sources.

Table 1 lists the themes of the Oil and Gas Infrastructures and Mineral Resources Map and their presence or absence on each of the 16 maps of this series. An "X" represents one or more features of this theme plotted on that overlay. A blank indicates a lack of information from field checking and literature review. When the theme is not applicable (e.g., offshore platforms in inland areas), "N/A" has been used. For each map overlay an accompanying Map Narrative Detail gives a more complete listing of features. When no information on a particular feature was found within a specific map area and, therefore, no data were compiled on the map, "No data" is indicated in the Map Narrative Detail.

The maps were compiled at a mesoscale (1:100,000) on United States Geological Survey (USGS) planimetric base maps printed on mylar. Theme data were originally plotted on diazo copies of the base maps, and the information was then transferred to 5 mil mylar overlays which were punch registered with the USGS base maps. The series has had peer reviews. A series of folded paper copy maps has been provided. The names of the 16 base maps are (from northeast to south Texas): Anahuac Quadrangle (Houston northeast), Houston Quadrangle (Houston

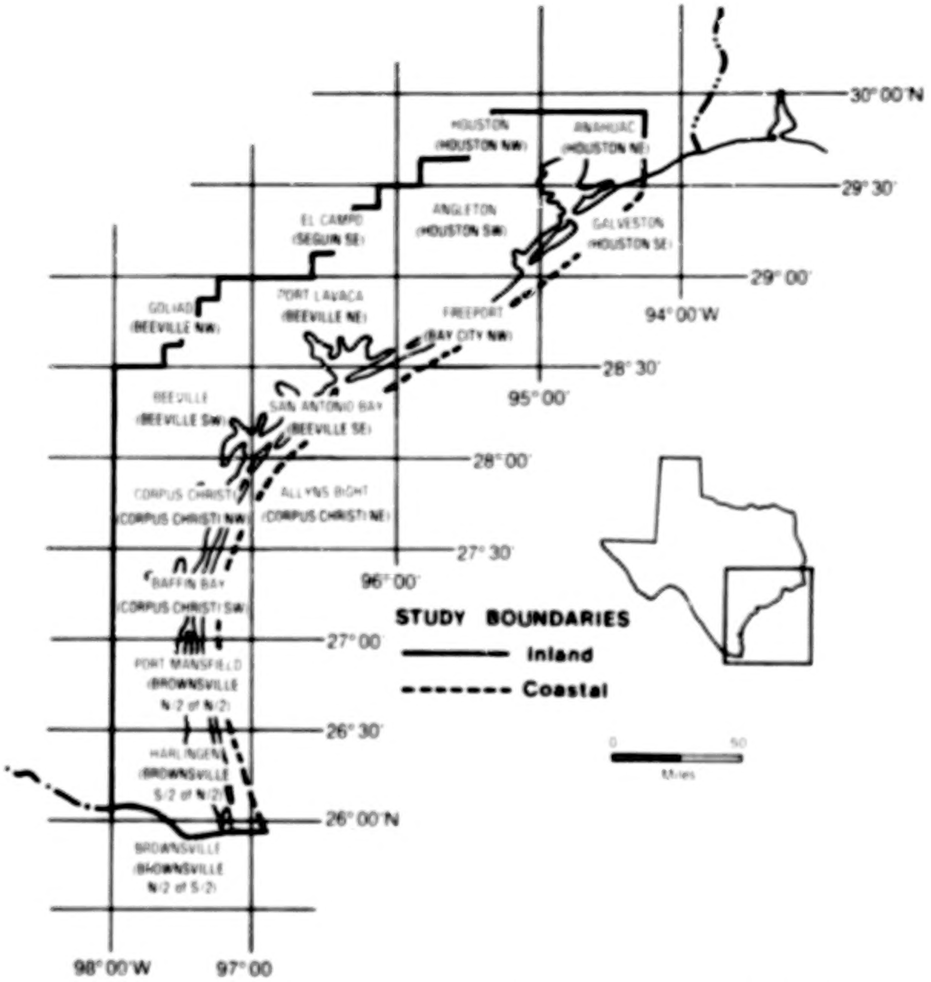


Figure 1. Index to sheets of the *Texas Barrier Islands Region Ecological Characterization Atlas: Mineral Resources and Selected Oil and Gas Infrastructures*.

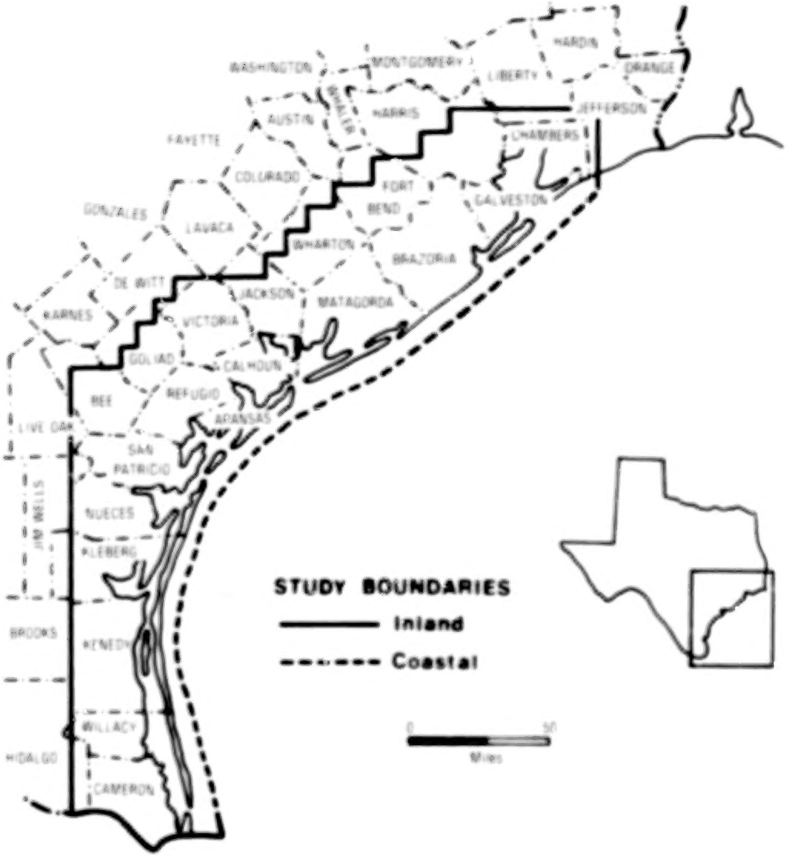


Figure 2. Counties of the Texas Barrier Islands Region.

Table 1. Map themes for the oil and gas infrastructure and mineral resources maps and the map overlays on which the themes are represented.

Themes Quadrangle Name	Oil pipelines: onshore	Oil pipelines: offshore	Gas pipelines: onshore	Gas pipelines: offshore	Refineries	Gas Processing plants	Compressor, pumping, and metering stations	Storage facilities (tank farms)	Offshore platforms	Platform fabrication yard	Dock facilities	Terminals	Helicopter service		Oil field	Gas field	Sand, clay, gravel, dirt pits	Sulphur wells/mines	Geopressured Geothermal areas	Groundwater sources
Allyns Bight		X		X				X	X							X				X
Anahuac	X	X	X	X	X	X	X	X	X			X	X		X	X	X			X
Angleton	X		X	X	X	X	X	X				X	X		X	X	X	X	X	X
Baffin Bay	X	X	X	X		X	X	X	X				X		X	X	X		X	X
Beeville	X	X	X	X		X	X	X							X	X	X		X	X
Brownsville			X		X	X		X		X		X	X		X	X			X	X
Corpus Christi	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X
El Campo	X	X	X	X	X	X	X	X	NA	NA			X		X	X	X			X
Freeport	X	X	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X	X
Galveston	X	X	X	X	X	X	X	X	X	X		X	X		X	X			X	X
Goliad	X	NA	X	NA		X	X	X	NA	NA	NA		X		X	X	X			X
Harlingen	X	X	X	X		X	X	X					X		X	X	X		X	X
Houston	X		X		X	X	X	X	X	X		X	X		X	X	X			X
Port Lavaca	X	X	X	X		X	X	X					X		X	X	X			X
Port Mansfield	X	X	X	X		X	X	X							X	X	X		X	X
San Antonio Bay	X	X	X	X		X	X	X			X		X		X	X				X

Pipelines

Transfer, Processing, Storage

Offshore and Port facilities

Oil and Gas Infrastructure

Mineral Resources

northwest), Galveston Quadrangle (Houston southeast), Angleton Quadrangle (Houston southwest), El Campo Quadrangle (Seguin southeast), Freeport Quadrangle (Bay City northwest), Port Lavaca Quadrangle (Beeville northeast), San Antonio Bay Quadrangle (Beeville southeast), Allyns Bight (Corpus Christi northeast), Beeville Quadrangle (Beeville southwest), Goliad Quadrangle (Beeville northwest), Corpus Christi Quadrangle (Corpus Christi northwest), Baffin Bay Quadrangle (Corpus Christi southwest), Port Mansfield (Brownsville north half of north half), Harlingen Quadrangle (Brownsville south half of north half), and Brownsville Quadrangle (Brownsville north half of south half). The location of these quadrangles in the study area is shown in Figure 1.

The legend for this set of Atlas maps has been reduced and is given in Table 2. The symbols were designed for easy recognition and were made large enough to be visible on mylar overlays over base maps.

The principal sources used to locate the onshore oil and gas pipelines, the refineries, gas processing plants, compressor, pumping and metering stations, storage facilities, and terminals were the *1979 Texas County Pipeline and Industrial Atlas*, which used a screened copy of the *Texas General Highway Map* at various dates and various scales (about 1:126,720) published by DeWitt Graphics; the unpublished "Commercial Company Pipeline Transmission Maps" of the Texas Railroad Commission, which are plotted on the same bases; and the published map of *Texs Gulf Coast and Continental Shelf Showing Natural Gas Pipelines* (1:444,000) of Transco Companies, Inc. These sources consist of maps at different scales and were compiled at different times (see the references for particulars). Where pipeline identifications were ambiguous or incomplete, permit files of the Texas Railroad Commission in Austin were consulted. These manuscript maps use the Texas Highway Maps of each county as a base. Only crude oil and natural gas pipelines and combinations thereof were plotted. No product lines nor gases other than natural gas were plotted. No chemical plants were plotted unless a refinery was associated with it.

The principal sources used for the location of the offshore pipelines (bay and gulf waters) were the unpublished charts of the Texas General Land Office showing the subdivision for mineral development of the bay waters and the "Texas Coast Map from Sabine River to the Rio Grande as Subdivided for Mineral Development." These have no date, are variably current as time to plot permits. The scales vary from 1" = 1200 varas to 1" = 300 varas. These charts were made available to us through the courtesy of Mr. Herman Forbes, Director, Surveying Division, Texas General Land Office. These data were supplemented by information derived from *Pipelines and Natural Resources of the Texas Coast* 1:24,000 prepared by Batterton and Green, Texas General Land Office.

The offshore platform locations were derived from the United States Department of Transportation's (1979) *Listing of Offshore Oil Well Structures and Submerged Wells in the Eighth Coast Guard District* and the map published for Offshore Helicopters, Inc., by the Sabine Offshore Service, Inc., which is an untitled 1979 map showing the location of lease blocks and offshore rigs. The platform fabrication yards were located from the *Directory of Texas Shipyards*.

BEST COPY AVAILABLE

Table 2. Legends for oil and gas infrastructure and mineral resources.

—	Boundary of Texas Barrier Islands Region
	A. Selected oil and gas infrastructure
	Oil Pipelines
- 1 -	Onshore -- one
- 2 -	Onshore -- two or more
- [1] -	Offshore -- one
- [2] -	Offshore -- two or more
-⟆-	Company and/or size change
	Gas Pipelines
—1—	Onshore -- one
—2—	Onshore -- two or more
—①—	Offshore -- one
—②—	Offshore -- two or more
—⟆—	Company and/or size change
N1	Pipeline Nodes: offshore oil and gas combined
	Refineries
△^{1}	Sites
R1	Areas
	Gas Processing Plants
▲^{1}	Sites
G1	Areas
	Compressor, Pumping, and Metering Stations
■^{1}	Sites
M1	Areas
	Storage Facilities
●^{1}	Sites
S1	Areas
◇^{1}	Platforms, offshore
	Platform Fabrication Yards
⬢^{1}	Sites
PF1	Areas
	Dock Facilities
◉^{1}	Sites
D1	Areas
	Terminal
[T]^1	Sites
T1	Areas
	Helicopter Service
◆^{1}	Sites
H1	Areas
	B. Mineral resources
O	Oil Fields
G	Gas Fields
Ⓢ^{1}	Sulphur Wells/Mines
⚒	Sand, Gravel, Clay, Dirt Pit
GG1	Geopressured-Geothermal Source
GW1	Groundwater Source

All numbers and superscripts are identified in map narrative details

Dock and terminal facilities were located from the 1979 Texas County Pipeline and Industrial Atlas, and the United States Department of Interior 1980 Final Environment Impact Statements entitled Proposed 1980 Outer Continental Shelf Oil and Gas Lease Sales, Western and Central Gulf of Mexico and Atlantic Ocean, and the Proposed 1980 Outer Continental Shelf Oil and Gas Lease Sales A62 and 62 (1:1,000,000) and from material provided by the Harbor Masters at the ports of Galveston, Houston, Corpus Christi, and the Brazosport Chamber of Commerce. The dock and terminal facilities are underreported; therefore, these maps do not record all those facilities found along the coast. Terminals were identified from the same sources and are certainly not all mapped.

Helicopter service to the offshore platforms is provided by a few companies, of which Evergreen, Air Majestic, and Petroleum Helicopter, Inc., handle the bulk of the activity. The principal heliport locations for offshore rig service are located in Brownsville, Corpus Christi, Galveston, and Lake Jackson. The location of all heliports in the study area was provided by Federal Aviation Administration, Fort Worth. These have been mapped and they are identified in the Map Narrative Detail.

The principal sources for the mineral resources were the several volumes of the Environmental Geologic Atlas of the Texas Coastal Zone (1:250,000) by the Bureau of Economic Geology (BEG), University of Texas at Austin; and two maps, also by the BEG, entitled Energy Resources of Texas (1:500,000). Gas and oil fields were distinguished from the 1979 Map of Texas Gulf Coast and Continental Shelf Showing Natural Gas Pipe Lines by Transco Companies, Inc. Sulphur deposits were mapped from the BEG maps. These include only the native sulphur deposits associated with the caprock of salt domes, and do not include that received secondarily from sour gas. Supplemental information on sand, gravel, clay, and dirt pits was taken from the USGS topographic quadrangles (7.5-minute series) and 1:65,000 aerial photographs taken by NASA in November of 1979. Groundwater sources were taken from the Texas General Land Office (GLO) maps (1:500,000) published in the Texas Coastal Zone Management Program. Geopressured-geothermal fairways were identified from small-scale maps (1:800,000) in Loucks, Dodge, and Galloway's 1979 study. They are, therefore, indicated in a very generalized outline on the Atlas map overlays.

Two field checks were made in the course of the mapping process. The trips followed the compilation phase and served to clarify points of confusion in the literature, as well as to map recently established enterprises. Those interested in larger scale plots of the pipelines and oil and gas service facilities of the Houston, Freeport, Ingleside, and Corpus Christi areas are directed to the detailed maps in the DeWitt Graphics 1979 Texas County Pipeline and Industrial Atlas.

Compilation and map conventions used in this study are those in general use among cartographers together with a few which were developed for use in this study. The information on the map includes linear features represented by solid, dashed, and hashed lines; areas which have been outlined by solid lines of different weights; and smaller areas and places which are represented by point symbols in the map.

Most of the straight lines represent pipelines. Oil lines are dashed lines, natural gas lines are continuous. A double-width pipeline signifies that more than one pipeline is in the corridor. Onshore pipelines are labeled with plain numbers and offshore pipelines are labeled with boxed or circled numbers representing oil or gas lines respectively. A zig-zag line through a line signifies a change in pipeline size, or company name, or both. The oil and gas lines are numbered separately in four categories: oil on- and offshore and gas on- and offshore. Offshore lines are those pipelines originating offshore and having the larger part of their courses in bay or Gulf waters. Some onshore pipelines pass for considerable distances across bay waters but are identified among the onshore pipelines. Where offshore lines are extremely congested about a collecting node, the letter "N" denotes the center of converging lines. The pipelines of the node are represented only diagrammatically and indicate the quadrants having the most lines. This means that not every pipeline has been mapped. These pipelines, both oil and gas, are listed from north clockwise in the Map Narrative Detail for each map overlay. To determine the easement holder not identified in the narrative, consult the Texas General Land Office files. Small feeder lines both onland and offshore are not identified. Since any line smaller than 2", as well as some larger ones which are feeder lines, are not represented on the map, storage facilities may have no pipelines going to them and pipelines may not go into all fields. Therefore, some pipelines are mapped as originating outside a field.

Terrestrial pipelines have been identified by company name and pipeline size. These include all pipelines originating on shore. Some may pass part of their courses under bay waters. Groups of gathering lines and feeders may be represented by one number but the principal pipelines are individually identified by number beginning with 1 for each overlay. Occasionally the pipeline size was not recorded in the source material, and therefore only the company is listed. A few pipelines were not identified. They have been labeled "unknown" pipelines. Very short feeder lines have not been identified. A list of the abbreviations of pipeline names used in this study is in Table 3. Other company names, especially of small private companies, are listed in the Map Narrative Detail for the map sheet. Care has been taken to use currently valid names for companies such as EXXON for the Humble designation used in base data.

Every effort has been made to plot the pipelines 2" or more that are in use. Some plotted pipelines have been abandoned and the word "abandoned" was placed after the identification in the map narrative details. In spite of considerable care the locations of pipelines are incomplete because the record is incomplete. Pipelines installed after 1979 are not included.

Offshore lines have been separated into oil and gas lines and are numbered separately. These are lines originating in the Gulf of Mexico or in any one of the many bays along the coast. Due to the sources used these may or may not connect on the map overlays with an onshore pipeline or facility. Information has been mapped as was available. The permit numbers used to identify the offshore pipelines are composed of three parts: product carried, the Texas General Land Office easement file number, and the diameter of the pipeline. Oil pipelines carry the prefix "O"; gas pipelines, the prefix "G"; and oil and gas pipelines, the

Table 3. Pipeline abbreviations used in this study.

ALCOA - Aluminum Company of America: Alcoa Conductor Products Company

AMOCO - Standard Oil Company (Indiana): Amoco Production Company; Amoco Oil Company; Amoco Pipeline Company; Amoco Production Company; Amoco Gas Company

ARCO - Atlantic Richfield Company: Arco Pipe Line Company

Big Heart - Big Heart Pipe Line Company

Big Three - Big Three Industries Incorporated

Blue Dolphin - Blue Dolphin Pipeline Company

Celanese - Celanese Corporation

Central P/L - Central & South West Corporation: Central Power & Light Company

Chevron - Standard Oil Company of California: Chevron Chemical Company, Chevron Industries Inc.; Chevron Pipe Line Company; Chevron U.S.A. Inc.

Cities Service - Cities Service Company: Cit-Con Oil Corporation; Cities Service Gas Company; Cities Service Oil Company; Cities Service Pipe Line Company

Coronado - Coronado Minerals Company

Corpus Christi - Corpus Christi Oil & Gas Company

Crown Central - Crown Central Petroleum Corporation: Crown Central Exploration & Production Division

CSGP - Coastal Corporation: Coastal States Marketing, Inc.; (Coastal States Crude Gathering Company); (Coastal States Producing Company)

CSGP (RGV) - Coastal Corporation Rio Grande Valley

Delhi - Delhi International Oil Corporation: Delhi Gas Pipeline Corporation

Dow - Dow Chemical Company: Dow Chemical U.S.A.

Eagle - Eagle Gas

Energy - Energy Resources Corporation: Energy Resources Oil and Gas Corporation

Enserch - Enserch Corporation: Lone Star Gas Company; Lone Star Gathering Co.; Nipak, Inc.; Lone Star Energy Company

Esperanza - Esperanza Gas

Explorer - Explorer Pipeline Company

Extex - Extex Gas

EXXON - Exxon Corporation: Exxon Company, U.S.A.; Exxon International Company; Exxon Pipeline Company; (Exxon Magnet Withers Sta).

FGT - The Continental Groups, Inc.: Continental Resources Company; Florida Gas Transmission Company; Florida Exploration Company

FINA - American Petrofina, Inc.: American Petrofina Company of Texas; American Petrofina Pipe Line Company

Gathering - Gathering line; Identified or unidentified pipeline owner; mostly smaller than 2 inches in diameter.

GATX - GATX Corporation

General - Company of General American Oil: General Crude Oil Company

Getty - Getty Oil Company: Getty Pipe Company

Gulf - Gulf Oil Corporation: Gulf Mineral Resources Company; Gulf Oil Company - U.S.; Gulf Oil Exploration & Production Company

H&H - Hughes & Hughes Oil and Gas

Haas - R. E. Haas Company

Halbouty - Michael T. Halbouty Energy Company

HDC - Hydrocarbon Development Corporation

(continued)

Table 3. (Continued).

HNG - Houston Natural Gas Corporation: Houston Pipe Line Company; Valley Pipe Line Company
Holly - Holly Corporation: Holly Energy Inc.
Houston L/P - Houston Industries Incorporated: Houston Lighting and Power Company
Houston O/M - Houston Oil & Minerals Corporation: Seagull Pipeline Corporation
HPL - Houston Natural Gas: Houston Pipe Line Company
HT - InterNorth Incorporated: Hydrocarbon Transportation, Incorporated
INT - Intratex Gas Corporation, Oasis P/L (HNG)
Intramerica - Intramerica Energy Corporation
Kilroy - Kilroy Company of Texas, Inc.
King - King Ranch Oil & Gas, Incorporated: King Resources Co.
Lavaca - LaVaca Gathering Company
Loop - A gas or oil pipeline makes a loop
Marathon - Marathon Oil Company: Marathon International Oil Company; Marathon Pipe Line Company
May Pet. - May Petroleum Incorporated
McCormick O/G - McCormick Oil and Gas Company
McMoRan - McMoRan Oil & Gas Company: Freeport - McMoRan Incorporated: McMoRan Oil & Gas Company: McMoRan Exploration Company; McMoRan - Freeport Oil Company; McMoRan Offshore Exploration Company; McMoRan Offshore Production Company; McMoRan Production Company
Meter Station - a pipeline serving an unidentified meter station
MGF - MGF Oil Corporation
Mitchell - Mitchell Energy & Development Corporation: Mitchell Energy Corporation; Mitchell Energy Offshore Corporation
Mobil - Mobil Corporation: Mobil Oil Corporation: Mobil Pipe Line Company
N. A. Royalties - North American Royalties, Incorporated
Neumin - Neumin Production Company
NGPL - Peoples Energy Corporation: Natural Gas Pipeline Company of America
Occidental Pet. - Occidental Petroleum Corporation
Old Ocean - Old Ocean Fuel Company
Paloma - Paloma Petroleum Ltd.
Pennzoil - Pennzoil Company: Pennzoil Products Company; Pennzoil Exploration & Production Company
Perry R. Bass - Perry R. Bass, Inc.
Phillips - Phillips Petroleum Company: Phillips Pipe Line Company
Reynolds - Reynolds Mining Corporation: Reynolds Pipeline Company
Scurlock - Scurlock Oil Company: Socony Oil Corporation
Seagull - Seagull International Exploration, Incorporation
Shell - Shell Oil Company: Shell Development Company; Shell Pipe Line Corporation
Sigmore - Sigmore Corporation
South. Natural - Southern Natural Resources Incorporated: Southern Natural Gas Company
Tenngas - Tenngasco, Incorporated
Texana - Texana Gas Company
Texas Electric - Texas Utilities Company: Texas Electric Service Company
Texas P/L - Texas Utilities Company: Texas Power & Light Company

(continued)

Table 3. (Concluded).

Texcol - Texcol Gas Company
Tidewater - Tidewater Incorporated
Transco - Transco Companies, Incorporated: Transcontinental Gas Pipe Line Corporation
Trunkline - Panhandle Eastern Corporation: Trunkline Gas Company
Tubb/Stephenson -Tubb/Stephenson Company
Summit - Summit Energy Corporation
Superior - Superior Oil Company
Sun - Sun Company Incorporated: Sun Petroleum Products Company, Sun Pipe Line Company
Tamarack Pet. - Tamarack Petroleum Company, Incorporated
Tejas - Tejas Gas Corporation
Tenneco - Tenneco Inc.: Channel Industries Gas Company; East Tennessee Natural Gas Company; Tenneco Corporation: Petro-Tex Chemical Corporation; Tenneco Chemicals, Inc; Nenneco Oil Company
Tesoro - Tesoro Petroleum Corporation
TET - Texas Eastern Corporation: Texas Eastern Transmission Corporation
Texaco - Texaco Incorporated: Texaco U.S.A
Tex.-N. Mex - Texas - New Mexico Pipe Line Company
TGP - Tennessee Gas Transmission Company
UG - United Energy Resources Incorporated: United Gas Pipe Line Company
Union Pacific - Union Pacific Corporation: Champlin Petroleum Company
Utah Int. - Utah International Incorporated: Ladd Petroleum Corporation
UTP - Allied Corporation: Union Texas Petroleum Corporation
UTT - United Energy Resources Company: United Texas Transmission Company; United Gas Pipeline Company
Valero - Valero Production Company: LoVaca Pipe Line Company
Valley - Valley Gas Transmission Company
Vaquero - Vaquero Petroleum Company

prefix "O/G". Occasionally the prefix "ME" is used which means "miscellaneous easement." Where oil and gas are covered by the same pipeline permit, as in O/G-2942-2 1/2", the pipeline is coded and entered with the oil lines. Where two or more pipelines are plotted together a wider line is used than for a single pipeline.

Because the sources used in compilation were not at the same scale nor for the same user community, a considerable number of pipelines do not connect at shorelines with other pipelines or to a facility. This is especially marked on the Corpus Christi Quadrangle.

The data source for offshore pipelines used in compilation did not include the owner of the pipeline permit. Some pipelines have been identified from published sources and have been included as an aid to the reader. However, some of these are not identified. A ready reference for some of the easements is the looseleaf narrative published by the General Land Office to accompany their 1979-80 study of Pipelines and Natural Resources of the Texas Coast. This source was used to identify those pipelines which have been labeled by company as well as by permit number. The Texas General Land Office personnel made a special search for this study, thereby substantially reducing the number of unidentified permit holders.

All pipelines mapped are for general locational purposes only and are not to be taken as the legal course of the line. These lines have been plotted with great care from manuscript and published sources at different scales. However, no legal responsibility is accepted by the compilers for the courses of these lines. Similarly, the Gulf of Mexico side of the mapping area is not demarcated. In case of legal concerns, it is recommended that users consult maps in the offices of the Texas Railroad Commission in Austin, Texas, and charts in the General Land Office, Austin.

Areas are surrounded by solid lines of different weights. The mineral resources areas vary in size from very small to areas extending over several map overlays. Oil and gas fields have O or G in the interior of the area. These fields are not individually named. Other areas are identified by an alpha-numeric placed within the line, with the bottom of the letters and numbers facing inside the area. For example, a geopressured-geothermal fairway is labeled GG1 indicating that it is the first or the only one listed in the Map Narrative Detail for that map. Areas have been plotted as precisely as information and varying map scales allowed, so the reliability of the particular position of the boundary lines varies. Smaller areas enclosing the location of some facility associated with oil and gas infrastructure are labeled with an alpha-numeric inside the circumscribed area.

Very small areas, facilities occupying a small site, platforms, etc., are identified by point symbols. These are placed either on top of the site or close by. Where there is considerable congestion, some symbols will have arrows to the site. A symbol is centered over a site or small area and indicates location only and not areal extent. In those cases where a facility occupies a large amount of land, the boundaries are outlined and thus define an area. Thus, a gas plant may be represented by either a solid triangle with a numerical superscript or by a heavy-weight solid line outlining an area and identified by an alpha-numeric.

Some themes have not been numbered for indentification purposes and are not listed separately in the map narrative details. They are listed merely as present (e.g., groundwater sources or sand and gravel pits).

A segment of the Houston Quadrangle map overlay is reproduced on the next page (Figure 3) to illustrate the mapping symbols used; however, not all themes are represented on this illustration. The straight, dashed lines represent oil pipelines. The narrow-width lines represent one pipeline; the wider lines, two or more pipelines. The numbers associated with each line represents the permit owner and the size of the pipe (e.g., No. 32 is an Arco crude pipeline 36" in diameter; No. 52 is Exxon crude pipelines 2-8", 10" and 16"). Solid lines represent gas pipelines. The narrow lines represent one pipeline; the wider lines, two or more pipelines (e.g., No. 24 is a Channel gas pipeline 30" in diameter, No. 106 is United Texas Gas Transmission 24" and Texas Eastern Transmission 16"). There are two areas defined by narrow curved lines, one witnin the other in the upper central portion of the map. These represent an oil field, designated by the letter "O" within a larger gas field represented by the letter "G". A larger oil field is divided by the western boundary of the map segment. The point symbols represent facilities. The open triangle numbered "4" represents Exxon Clear Creek gas plant. A solid square numbered "4" represents the Pasadena pumping station and a diamond numbered "51" represents a Pasadena police heliport, 3321 West Side. The area R2 partially shown on the map represents part of a Shell Oil Company refinery. Other symbols can be identified from the Map Narrative Detail for the Houston Quadrangle.

There are 16 Map Narrative Details, one for each map. The format is the same for each and follows the ordering of features as listed in Table 1. To simplify the use of the narratives, features in great abundance but small in size are keyed to a particular quadrant of the map overlay. Each map is considered to have four equal quadrants. Quadrants are identified by the letters NW, NE, SW, and SE. A feature identified and followed by the letters "SW" is interpreted as being located in the southwestern quadrant of the map. No areas are identified to quadrant.

All maps should be used in conjunction with these map narrative texts.

A list of references including the sources for materials and maps follows.

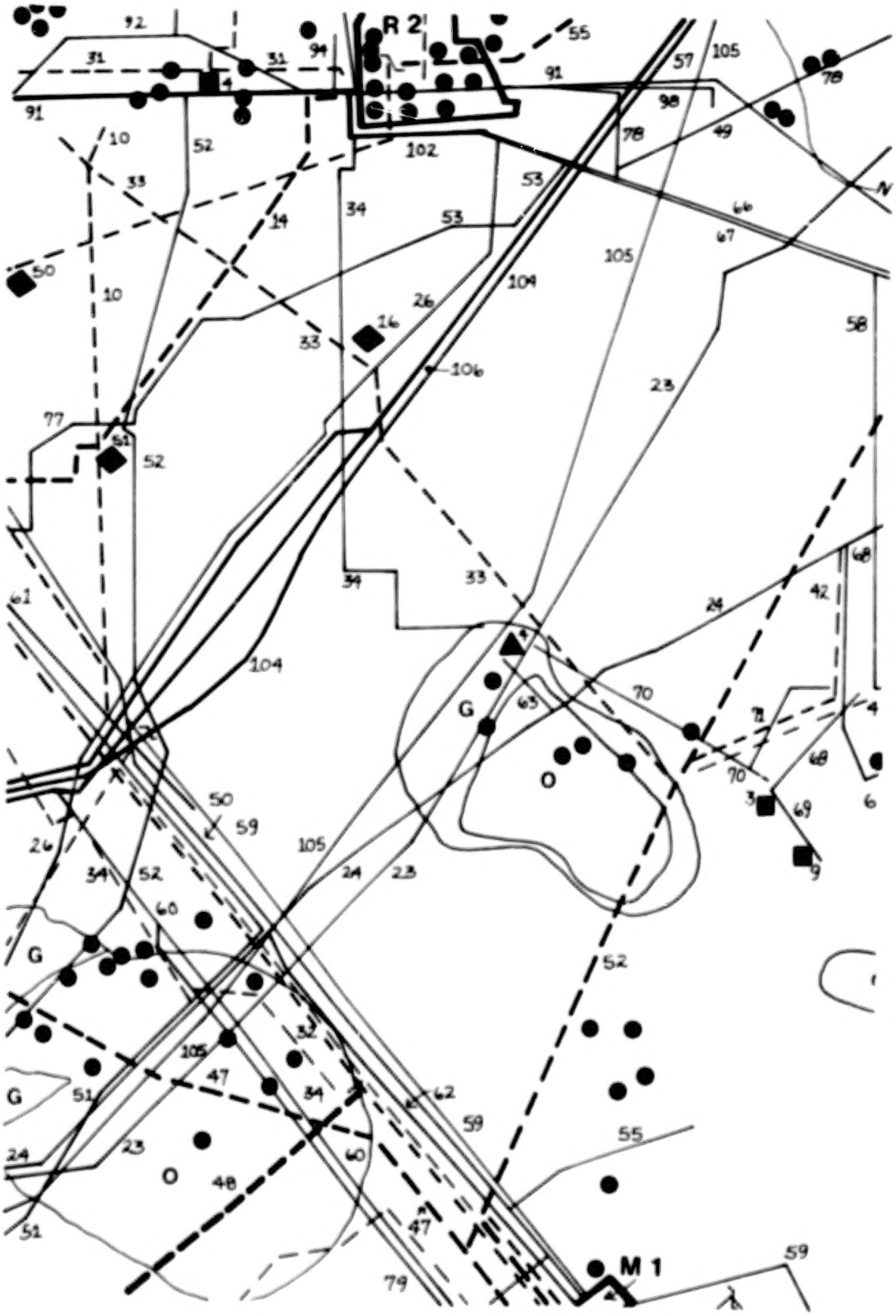


Figure 3. Houston Quadrangle segment.

REFERENCES

American Petroleum Institute. 1979. Basic petroleum data book: petroleum industry statistics. 5th Printing, American Petroleum Institute, Washington D. C.

Brown, L. F., J. L. Brewton, J. H. McGowen, T. J. Evans, W. L. Fisher, and C. G. Groat. 1976. Environmental geologic atlas of the Texas Coastal Zone - Corpus Christi Area. Bureau of Economic Geology, The University of Texas at Austin.

Brown, L. F., Jr., J. H. McGowen, T. J. Evans, C. G. Groat, and W. L. Fisher. 1977. Environmental geologic atlas of the Texas Coastal Zone - Kingsville Area. Bureau of Economic Geology, The University of Texas at Austin.

Bureau of Business Research, University of Texas at Austin. 1974. Directory of Texas manufacturers. Volume 1: alphabetical, geographical and organizational reference listings. 1974. Austin, Tex. 78712.

Bureau of Economic Geology, University of Texas at Austin. n.d. Potential geothermal resources in Texas. A summary statement. Austin, Tex. mimeo.

Bureau of Economic Geology, The University of Texas at Austin. 1976. Energy resources of Texas. Austin, Tex. 1:100,000 maps.

Bureau of Economic Geology, The University of Texas. 1979. Mineral resources of Texas. Compiled by L. E. Garner, A. E. St. Clair, and T. J. Evans. Cartography and design: Barbara Harlmann and J. W. Macon Chief Cartographer. 1:1,000,000 maps. Austin, Tex.

Bureau of Land Management, U. S. Department of the Interior. 1980. Final environmental impact statement: proposed 1980 Outer Continental Shelf oil and gas lease sales A62 and 62. 116p. New Orleans, La.

Bureau of Land Management, U. S. Department of the Interior. 1980. Proposed 1980 Outer Continental Shelf oil and gas lease sales. Western and Central Gulf of Mexico and Atlantic Ocean. New Orleans Outer Continental Shelf Office. New Orleans, Louisiana. Bureau of Land Management 1:1,000,000 maps (approxi.). Sheets prepared in conjunction with proposed OCS lease sale. Maps used:
- Visual No. 7 Infrastructure, Accidents, and Undersea Features.
- Visual No. 8 Geopressured - Geothermal Energy in Reservoir Fluids.

Center for Marine Resources, Texas A&M University. 1974. Texas port fact book. Compiled for Texas Coastal and Marine Council as a partial response to S.R. 269 and H.S.R. 82. College Station, Tex.

Dewitt Graphics, compiler. 1979. 1979 Texas county pipeline and industrial atlas. 2 vols. Dewitt Graphics, Houston, Tex.

Dorfman, M., and R. O. Kehle. 1974. Potential geothermal resources of Texas. The Bureau of Economic Geology, The University of Texas at Austin.

Dorfman, M. H., and D. G. Bebout. April 1979. United States Gulf Coast Geopressured-Geothermal Program. Special Projects Research and Coordination Assistance. Final report, October 1, 1977-November 30, 1978. Center for Energy Studies and Bureau of Economic Geology. The University of Texas at Austin.

Financial Times Oil and Gas International Year Book. 1982. 1981 Longman Group Ltd., Westgate House, The High, Harlow, Essex CM 20 INE UK.

Fisher, W. L. 1978. Texas energy reserves and resources. Bureau of Economic Geology, The University of Texas at Austin.

Fisher, W. L., J. H. McGowen, L. F. Brown, Jr., and C. G. Groat. 1972. Environmental geologic atlas of the Texas Coastal Zone - Galveston - Houston Area. Bureau of Economic Geology, The University of Texas at Austin.

Geopressured Geothermal Well Drilled in South Texas. Oct. 1979. Texas energy and mineral resources, Vol. 5, No. 10, Texas A&M University College Station.

Gustavson, T. C., M. McGraw, M. Tandy, F. Parker, and D. C. Wohlschag. 1979. Ecological implications of geopressured - geothermal energy development Texas-Louisiana Gulf Coast Region. In Research and Planning Consultants, Inc. Analyses of ecological effects of geopressured - geothermal resource development. Texas General Land Office, Austin, Tex.

Hollin, D., and M. Scogin. 1980. Directory of Texas shipyards. Texas A&M University, Sea Grant College Program, (TAMU-SG-80-507), College Station, Tex.

Kreitler, C. W., and T. C. Gustavson. 1978. Geothermal resources of the Texas Gulf Coast - environmental concerns arising from the production and disposal of geothermal waters: proceedings of the second geopressure - geothermal energy conference vol. 5, report 3. In C. W. Kreitler, ed., Faulting and land subsidence from groundwater and hydrocarbon production Houston-Galveston, Tex.

Liebow, E. B., K. S. Butler, T. R. Plant, et al. 1980. Texas Barrier Islands Region ecological characterization: a socioeconomic study. Volume 1: Synthesis papers and Volume 2: Data appendix. U. S. Fish Wildl. Serv. Biol. Serv. Program. FWS/OBS-80/19 and FWS/OBS-80/20.

Loucks, R. G. January 1978. Geothermal resources, Vicksburg Formation, Texas Gulf Coast. Bureau of Economic Geology, The University of Texas at Austin.

Loucks, R. G., M. M. Dodge, and W. E. Galloway. 1979. Sandstone consolidation analysis to delineate areas of high-quality reservoirs suitable for production of geopressured-geothermal energy along the Texas coast. ORO-5554-1. Bureau of Economic Geology, The University of Texas at Austin.

Matheny, S. L., Jr., ed. 1980. Big new derrick barge goes to work in Gulf of Mexico. Oil and Gas J. 78(6):93-98.

McGowen, J. H., L. F. Brown Jr., T. J. Evans, W. L. Fisher, and C. G. Groat. 1976. Environmental geologic areas of the Texas Coastal Zone - Bay City - Freeport Area. Bureau of Economic Geology, The University of Texas at Austin.

McGowen, J. H., C. V. Proctor, Jr., L. F. Brown, Jr., T. J. Evans, W. L. Fisher, and C. G. Groat. 1976. Environmental geologic atlas of the Texas Coastal Zone - Port Lavaca Area. Bureau of Economic Geology, The University of Texas at Austin.

Miller, B., H. L. Thompson, G. L. Dolton, A. B., Coury, T. A. Hendricks, F. E. Lennnart, R. B. Powers, E. G. Sable, and C. L. Varnes. 1975. Geological estimates of undiscoverable recoverable oil and gas resources in the United States, 1975. U. S. Geological Circular 725. U. S. Department of Interior, Geological Survey, Washington, D. C.

Offshore Rig Locator. 1980. Offshore 40(2):179-180.

Offshore Rig Locator. 1980. Petroleum Engineering 52(2):R17-R19.

Oil & Gas Directory, the 12" Edition 1981-82. 2200 Welch Avenue, P.O. Box 13508, Houston, Tex.

Petroleum Industry Yellow Pages, Gulf Coast. November 1979. Published by the Whico Atlas Company. P.O. Box 25143, Houston, Tex.

Sabine Offshore Service, Inc. n.d. Untitled map of Texas and Louisiana coast and offshore waters showing location of offshore platforms. J. C. Spencer and Co., P.O. Drawer 2226, Houston, Tex.

Seaton, E, ed. 1980. High Island gathering system nears completion. Oil and Gas J. 78(6):101-104.

Soil Conservation Service. 1979. U. S. Department of Agriculture, in cooperation with Brazoria County Commissioners Court and Texas Agricultural Experiment Station. Soil survey of Brazoria County, Texas. Gerald W. Crenwelge, Jack D. Crout, Edward L. Griffen, Michael L. Golden, and Janet Baker.

Standard and Poor's Corporation. 1982. Standard and Poor's Register of corporations, directors, and executives. 25 Broadway, New York, 3 vols.

State of Texas, General Land Office - Austin, Texas. Submerged lands Nueces Bay and adjoining areas illustrating mineral development. Unpublished map available at General Land Office, Austin. Scale 1" = 600 varas. 1:20,000.

Sumpter, R., ed. 1980. Gulf coast platform work looks up. Oil and Gas J. 78(6):88-90.

Technical Information Center. U. S. Department of Energy. 1979. Geothermal enegy update. Abstracts 1937-2172 GEU-79/12. Technical Information Center, U. S. Department of Energy, Oak Ridge, Tenn.

Tests set for Texas geopressured well. September 10, 1979. Oil and Gas J.

Texas Almanac 1980-1981. 1979. A. H. Belo Corporation, Dallas.

Texas Department of Highways and Public Transportation. Texas General Highway Map. Various dates. Transportation Planning Division. Revised. Austin, Texas. Texas Department of Highways and Public Transportation, U. S. Department of Transportation. Various scales about 1:126,720. (1/2 scale edition).

Maps Used

- Aransas
- Bee
- Brazoria - 2 sheets
- Brooks
- Calhoun
- Cameron - 2 sheets
- Chambers
- Fort Bend
- Galveston
- Goliad
- Harris - 2 sheets
- Hidalgo - 2 sheets
- Jackson
- Jim Wells - 2 sheets
- Kenedy - 2 sheets
- Kleberg - 2 sheets
- Liberty
- Matagorda - 2 sheets
- Nueces - 2 sheets
- Refugio
- San Patricio
- Victoria
- Wharton
- Willacy

Texas Department of Highways and Public Transportation. 1979. Texas official highway travel map. State Highway and Public Transportation Commission. 1:457,280.

Texas General Land Office. Map showing subdivision for mineral development. Unpublished maps available at General Land Office, Austin. 16 manuscript sheets at variable scales:
- Baffen and Alazan Bays, Cayo Infiernillo in Kenedy and Kleberg Counties. Scale 1" = 1200 varas.

- Copano, St. Charles, Aransas and Red Fish Bays in Aransas and Nueces Counties. 1" = 1200 varas.

- Corpus Christi Bay in Nueces Co. Scale 1" = 1200 varas.
- Drum, Oyster & Bastrop Bays and Vicinity in Brazoria County. 1" = 600 varas.

- East Part of West Bay & SW Part of Galveston Bay in Galveston County. Scale 1" = 2000'.

- East Portion of Matagorda Bay in Matagorda County. 1" = 1200 varas.

- Galveston, Trinity & Turtle Bay & Portions of San Jacinto & East Bays in Chambers and Galveston Counties. Scale 1" = 1500 varas.

- Harbor Island in Nueces Bay. 1" = 300 varas.

- Laguna Madre: Sheet 1 Part of Laguna Madre in Nueces & Kleberg Counties. 1" = 1200 varas.
  - Sheet 2 part of Laguna Madre in Kenedy & Kleberg Counties. 1" = 1200 varas.
  - Sheet 3 part of Laguna Madre in Kenedy & Willacy Counties. 1" = 2000 varas.
  - Sheet 4 part of Laguna Madre in Willacy and Cameron

Counties. 1" = 1200 varas.
- Sheet 5 part of Laguna Madre in Cameron County. 1" = 2000'.
- Sheet 6 part of Laguna Madre in Cameron County. No scale.
- Matagorda Bay and vicinity in Matagorda and Calhoun Counties. Revised map (to March 1959). 1" = 4000'.
- North Portion of Lavaca Bay and vicinity. Scale 1:20,000 or 1" = 600 varas.
- Portions of Galveston and East Bays and the Gulf of Mexico in Galveston County. 1" = 1500 varas.
- San Antonio Bay and vicinity in Aransas and Calhoun Counties. 1" = 4000'.

Texas General Land Office. 1974. Socio-economic inventory and analysis of the Gulf of Mexico region. Contract No. 08550-C73-10 by Environmental Consultants, Inc. Dallas, Tex. 75240.

Texas General Land Office. 1975. Resources of the Texas coastal region. Coastal Management Program, Austin. 1:100,000. Titles of maps in series used.
  Substrate Map Plates 2A-2B.
  Mineral and Energy Resources Map Plates 7A-7B.

Texas General Land Office. 1976. Report to the Governor and the 65th Legislature. Texas Coastal Management Program. Report, executive summary, appendices, and map sets. Austin.

Texas General Land office. 1979. Accessibility and protection of Texas shorefront areas. Austin.

Texas General Land Office. 1980. Pipelines and natural resources of the Texas coast. John Batterton, Project Manager and Rebecca Green, Cartographer. Environmental Management Program, General Land Office, Austin. 161 maps compiled on 121 USGS base maps and 40 BLM charts. Those maps based on BLM charts numbered 1-40. Those maps used based on UGSG base maps are numbered 9-121.

Texas General Land Office. N.D. Texas coast map from Sabine River to the Rio Grande as subdivided for mineral development. Unpublished charts available at General Land Office, Austin. 4 sheets at variable scales.

Texas Ports Association, Texas Coastal and Marine Council, Texas A&M University Sea Grant College Program. 1974. Analyses of the role of the Gulf Intracoastal Waterway in Texas. College Station, Tex. December 1974. TAMU-SG-75-202.

Texas Railroad Commission. (current) Commercial Company Pipeline Transmission Maps. Unpublished, housed in the Audit & Permit Division Texas Railroad Commission, Austin.

Transco Companies, Inc. 1979. Texas gulf coast and continental shelf showing natural gas pipelines. N. F. Stanley and R. W. Evans, cartographers. Transco Companies, Inc.

Transco Companies, Inc. 1981. Texas gulf coast and continental shelf showing natural gas pipelines. N. F. Stanley and R. W. Evans, cartographers. Transco Companies, Inc.

Trehen, R., A. Cohen, J. Gupta, W. Jacobsen, J. Leigh, and S. True. August 1978. Site specific analysis of geothermal development -- data files of prospective sites. Volume II.

U. S. Department of Transportation. 1979. Listing of offshore oil well structures and submerged wells in the Eighth Coast Guard District, New Orleans, La. Eighth Coast Guard District 1979.

U. S. geothermal program to buy gulf dry holes. April 7, 1980. Oil and Gas J. 78(4).

White, W. A., M. A. McGraw, T. C. Gustavson. 1978. Environmental analysis of geopressured - geothermal prospect areas, Brazoria and Kenedy Counties, Texas. Bureau of Economic Geology, The University of Texas at Austin.

Wilson, J. S., B. P. Shepherd, and S. Kaufman, Dow Chemical U.S.A. Oct. 15, 1974. An analysis of the potential use of geothermal energy for power generation along the Texas gulf coast. Report prepared by the Texas Division of Dow Chemical, U.S.A. for the Governor's Energy Advisory Council, the State of Texas.

Zinn, C. D. 1977. Operations research and systems analyses of geothermal - geopressured resources in Texas. ORO-5443-1 Center for Energy Studies, The University of Texas at Austin.

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

ALLYNS BIGHT QUADRANGLE (Corpus Christi NE) including part of Aransas County

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
   - a) Onshore
     - No data
   - b) Offshore, number boxed
     - 1 = Permit number 0-4112-3 1/2", 10 3/4", Corpus Christi NW
     - 2 = Permit number 0-4112-6", 4", Corpus Christi NW
     - 3 = Permit number 0/G-80-212-12", 24" NW
     - 4 = Permit number 0-80-085-8", Tenneco NW
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
   - a) Onshore
     - No data
   - b) Offshore, number circled
     - 1 = Permit number G-3414-6" NW
     - 2 = Permit number G-1566-12", Valero gathering NW
     - 3 = Permit number G-3450-4 1/2", McMoRan NW
     - 4 = Permit number G-4045-4 1/2" NW
     - 5 = Permit number G-4130-4", FGT NW
3. Nodes (N) of offshore pipelines - oil and gas
   - No data
4. Refineries
   - a) site
     - No data
   - b) area
     - No data
5. Gas processing plants
   - a) site
     - No data
   - b) area
     - No data
6. Compressor, pumping, and metering stations
   - a) site
     - No data
   - b) area
     - No data
7. Storage facilities
   - a) site
     - Present
   - b) area
     - No data
8. Platforms, offshore
   - Present
9. Platform fabrication yards
   - a) site
     - No data
   - b) area
     - No data
10. Dock facilities
    - a) site
      - No data
    - b) area
      - No data
11. Terminals
    - a) site
      - No data
    - b) area
      - No data
12. Helicopter service
    - a) site
      - No data

b) area

No data

B. Mineral Resources

1. Oil fields

   No data

2. Gas fields

   Present

3. Sand, gravel, clay, dirt pits

   No data

4. Sulphur wells, mines

   No data

5. Geopressured - geothermal area

   No data

6. Groundwater source

   Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

ANAHUAC QUADRANGLE (Houston NE)
including parts of Chambers, Galveston, and Harris counties

A. Oil and Gas Infrastructure
1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
a) Onshore
1 = ARCO 8" NW
2 = Texas P/L 20" NW
3 = Gulf 2-8" NW
4 = EXXON 8" NW
5 = EXXON 8" NW
6 = EXXON 2-8", 10" 16" SW
7 = Sun 6" NE
8 = Permian NE
9 = EXXON 6" SW
10 = EXXON 8" SW
11 = EXXON 4" SW
12 = ARCO NW-SW
13 = Explorer 28" NW
14 = Sun 6" NE
15 = Sun NE
16 = Chevron 6" SW
17 = Sun 6" NW
18 = Sun 4" NW
19 = Sun 6" NW
20 = EXXON 8" NW
21 = Sun 6" NW
22 = Sun 4" NW
23 = Sun 6" NW-SW
24 = EXXON 6" NW
25 = EXXON 6" NW
26 = Sun 6" SW
27 = Scurlock 4" SW
28 = Gulf 4" NW
29 = Sun 10" NE
30 = Sun 4" SE
31 = Sun 4" SE
32 = Sun 6" SE
33 = Sun 3" NE
34 = Sun 4" NE
35 = Sun 7" NE
36 = Sun 6" NE
37 = Sun 4" NE
38 = Sun 6" NE
b. Offshore, number boxed
1 = Permit number O-80-126-4" NW
2 = Permit number O/G-3469-8", EXXON NW
3 = Permit number O-1124-6", No name NW
4 = Permit number O-2864-3", EXXON NW
5 = Permit number O-2608-2", No name NW
6 = Permit number O/G-540-3", Texaco SW
7 = Permit number O-671-4", No name SW
8 = Permit number O/G-3661-2 1/2", EXXON SW
9 = Permit number O/G-1359-6", No name SW
10 = Permit number O/G-3417-8", EXXON SW
11 = Permit number O-3372-4", Sun SW
12 = Permit number O-80-134-4", MGF SW
13 = Permit number O-676-2", No name SW
14 = Permit number 4", Houston O/M SW
15 = Permit number O-79-304-4 1/2", Getty SW
16 = Permit number O/G-2977-6", EXXON SW
17 = Permit number O/G-80-127-2 7/8", No name SW

18 = Permit number O-2761-6", Chevron SW
19 = Permit number O/G-3372-4", Sun SW
20 = Permit number O/G-2345-2", 4", 8", EXXON SW
21 = Permit number O-3580-2-6 5/8", 4 1/2", No name SW
22 = Permit number O/G-2612-12, Houston O/M SW
23 = Permit number O-2071, EXXON SW
24 = Permit number O/G-3583-4", No name SW
25 = Permit number O/G-2225-12", 14", EXXON SW
26 = Permit number ME-684-10", No data SW
27 = Permit number O/G-3621-6 5/8", Houston O/M SW
28 = Permit number O/G-3759-2-4", Hannah Island Gathering System SW
29 = Permit number O/G-1520-2 1/2", Houston O/M SW
30 = Permit number O/G-3334-2 1/2", Houston O/M SW
31 = Permit number O-2574-2-2 1/2", Sun SW
32 = Permit number O-2238-10", EXXON SW
33 = Permit number O-2345-2-4", 2-13", 2-2 1/2", 2-4", EXXON SW
34 = Permit number O/G-3582-4", EXXON SW
35 = Permit number O/G-3800-8", EXXON (Re of ME-1644 & 2428) SW
36 = Permit number O-79-246-4 1/2", Houston O/M SW
37 = Permit number O/G-4095-4", Houston O/M SW
38 = Permit number O/G-3435-6", 8", 12", Houston O/M SW
39 = Permit number O/G-3850-4", No name SW
40 = Permit number O/G-3581-3", Houston O/M SW
41 = Permit number O-79-313-10", SW

2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines

a) Onshore

1 = Valero 12" NW
2 = Bay NE
3 = UTP 6" SW
4 = Tenneco 30", NW
5 = UTT 20", TET 2-30" NW
6 = UTP 6", 12" NE
7 = EXXON 30" NW
8 = AMOCO gathering NW
9 = AMOCO gathering NW
10 = UTP 10" SW
11 = UTP 10" SE
12 = Tenneco 30" SW
13 = AMOCO gathering NW
14 = UTT 20", TET 2-30", EXXON 30" NW
15 = UTT 20", TET 2-30", EXXON 30", Tenneco 30" NW
16 = UTT 20", TET 2-30", EXXON 30" NW
17 = UTT 8" NW
18 = HPL 12" NW
19 = EXXON 8" SW
20 = Tenneco 8" SW
21 = UTT 12" SW
22 = AMOCO gathering NW
23 = AMOCO gathering NW
24 = UTT 24" NW
25 = UTT 8" NE
26 = UTP 4" NE
23 = AMOCO gathering NW
24 = UTT 24" NW
25 = UTT 8" NE

26 = UTP 4" NE
27 = EXXON 30" NW
28 = Bayou 2" NW
29 = UTT 20" NW
30 = EXXON 8" NW-SW
31 = EXXON 4" SW
32 = AMOCO gathering NW
33 = AMOCO gathering NW
34 = AMOCO gathering NW
35 = AMOCO gathering NW
36 = HPL 6" NW
37 = Tenneco 30" NW
38 = Tejas 14" NW-SW
39 = UTT 8" NW-SW
40 = EXXON 2" SW
41 = Seagull 4" SW
42 = AMOCO gathering NW
43 = Seagull 12" SW
44 = FGT 24", Tejas 14" SW
45 = Seagull 12" SW
46 = UTP 2 1/2" SW
47 = UTP 2 1/2" SW
48 = UTP 4" SW
49 = UTP 8" SW
50 = HPL 12" NW
51 = EXXON 2-8" NW
52 = EXXON 10" NW
53 = EXXON 10" SE
54 = UTP 16" SE
55 = AMOCO 16" SW-NE
56 = UTP 6" SW
57 = UTP 6" SW
58 = UTP 2" SW
59 = TET 2-30" NW
60 = EXXON 30" NE
61 = Prudential 3" SE
62 = Tejas 2" SW
63 = UTP 16" NE
64 = Unnamed 14" NE
65 = 4" connection to UTP 20" NE
66 = UTT 10" NE
67 = UTT 8" NE
68 = Texaco 10" NE
69 = Texaco 12" NE
70 = UTT 10" NE
71 = UTP 20" NE
72 = 20" connection to No. 25, No. 34 SE
73 = Texaco 4" NE
74 = Unnamed 4" NW
75 = UTT 6", 8", NE

b) Offshore, number circled
1 = Permit number G-2197-8", EXXON SW
2 = Permit number G-673-8", No name SW
3 = Permit number G-2193-6", EXXON SW
4 = Permit number G-2194-2-6", No name SW
5 = Permit number G-2195-2", No name SW
6 = Permit number G-80-053-8", 10", Pennzoil SW
7 = Permit number G-3677-8 5/8", Tenngas gathering SW
8 = Permit number G-2741-4", EXXON SW
9 = Permit number G-1122-4" Sun, G-1908-4" SW
10 = Permit number G-79-256-4", Sun SW
11 = Permit number G-2345-8 1/2", 2", 8", 2 1/2", EXXON SW
12 = Permit number G-972-2", G-884-2", G-987-2", No name SW
13 = Permit number G-2805-4", EXXON SW
14 = Permit number G-3662-2-4", Houston O/M SW
15 = Permit number G-80-053-10", UTT SW
16 = Permit number G-80-053-10", No name SW
17 = Permit number G-80-053-8", 10", No name SW
18 = Permit number G-884-2", EXXON SW
19 = Permit number 18" AMOCO SW
20 = Permit number G-673-6", No name SW
21 = Permit number 6", EXXON 10" SW

22 = Permit number G-2612-12", Seagull SW
23 = Permit number 12", UTT 10" SW
24 = Permit number 12", FGT 24" SW-NE
25 = Permit number G-825-2", EXXON SW

3. Nodes (N) of offshore pipelines - oil and gas

Labeled clockwise from north by permit number. The many pipelines are represented by a few lines.

N1 includes, in order SW
- Permit number 0/G-79-169-2" EXXON
- Permit number 0/G-2198-6" EXXON
- Permit number 4114-2" EXXON
- Permit number G-799 Texaco
- Permit number 0-1223-2 1/2" EXXON
- Permit number 0-1224-2 1/2" EXXON
- Permit number 0/G-2911-2 1/2" EXXON
- Permit number 0-5650-2 1/2"-2"
- Permit number 0-2016-2" EXXON
- Permit number 0-1216-2" Abandoned
- Permit number 0-224-2 1/2"
- Permit number 0-1159
- Permit number 0/G-1144-2 1/2" EXXON
- Permit number 0-2936-2" EXXON
- Permit number 0/G-3224-2" EXXON
- Permit number 4171-2" EXXON
- Permit number 0-2619-2 1/2" EXXON
- Permit number 0-2071-2 1/2" EXXON
- Permit number 0/G-1869-2 EXXON cancelled
- Permit number 0-3091-2 1/2" South Texas Petroleum, Inc.

N2 includes, in order SW
- Permit number 0-1680-2 1/2" EXXON
- Permit number 80-150-2 1/2" EXXON
- Permit number 0-3026-2 1/2" EXXON
- Permit number 0-1206-2" EXXON
- Permit number 0-80-034-2" EXXON

N3 includes, in order SW
- Permit number 0/G-3224-2" EXXON
- Permit number 4171-2" EXXON
- Permit number 80-151 EXXON

N4 includes, in order SW
- Permit number 0-2847-2 1/2" AMOCO
- Permit number 0-3605-2" EXXON
- Permit number G-1151-2" EXXON
- Permit number 0-3605-2" EXXON
- Permit number G-1000-2" Cities Service
- Permit number 0-2922-2" (Re of ME-1123)
- Permit number 0-2875-2" EXXON
- Permit number 0-1678-2" EXXON
- Permit number G-2945-2" EXXON
- Permit number 0-2876-2" EXXON

N5 includes, in order SW
- Permit number 0-3979 EXXON
- Permit number 0-1661-2" EXXON

Permit number G-1180-2"
EXXON
Permit number 0-2074-2"
EXXON
Permit number 0-80-154-2"
EXXON
Permit number 0-2460-2"
EXXON
Permit number 0/G-3003-2"
EXXON
Permit number 0-80-138-2
1/2" EXXON
Permit number 0-1870-2"
EXXON
Permit number 0-2075-2
1/2" EXXON
Permit number 0-2423
EXXON
Permit number 0-3401-3"
EXXON
Permit number 0-2415-2"
EXXON
Permit number 0-2067-2
1/2" EXXON
Permit number 0-3606-2"
EXXON
Permit number G-2937
EXXON
Permit number 0-3253-6",
4" EXXON
Permit number G-3686-2"
Cayuse
Permit number 0-79-171
EXXON
Permit number 0-2072-2
1/2" EXXON
Permit number 0-1579-2"
Permit number 0-3400-3"
EXXON
Permit number 0/G-2937-6"
Permit number 0-2041-2"
EXXON
Permit number 0-1135-2"
Permit number 0-2181
Permit number 0-2847-2
1/2" AMOCO
Permit number 0-2171
Permit number G-3174-2"
EXXON

Permit number 0-2037-2"
EXXON
Permit number 0-2917-2"
EXXON
Permit number G-1201
Permit number G-2036-2"
EXXON
Permit number 0-1507-2"
EXXON
Permit number G-3825-2"
EXXON
Permit number G-2084-2"
EXXON
Permit number 0-1124-2"
Texaco
Permit number 0-2085
EXXON
Permit number 0-2390-2
1/2" EXXON
Permit number 0/G-4127-2"
EXXON

N6 includes, in order SW

Permit number 0/G-1099-2"
EXXON
Permit number 0-2044-2
1/2" EXXON
Permit number 0/G-2191
EXXON
Permit number 0-2054-2"
EXXON
Permit number 0-1662-2"
EXXON
Permit number 0-2046-2"
EXXON
Permit number 0-2073-2",
2 1/2" EXXON
Permit number 0-2917-2"
EXXON
Permit number 0/G-1574-2"
EXXON
Permit number 0/G-1946
EXXON
Permit number 0-2076
EXXON
Permit number G-1143-2"
Permit number G-1413, 80-
017-2"
Permit number G-1412-2"
Permit number 0-1679-2"

- Permit number 0-2086-2"
  - EXXON
- Permit number 0-2948
  - EXXON
- Permit number 0-34100-3"
  - connects to N-5
  - Houston 0/M
- Permit number G-1864-4"
  - Houston L/P
- Permit number 0-80-071-1
  - EXXON
- Permit number G-1140
- Permit number 0-3668-2 1/2" connects to N-7
  - EXXON

N7 includes, in order SW

- Permit number 0/G-3618-2 1/2", G-80-151
- Permit number G-1140
- Permit number 0/G-2627-2", 2 1/2", EXXON, 0-3867-2"
- Permit number 0-2848-2"
  - EXXON
- Permit number 0-2948-4"
  - EXXON
- Permit number 0/G-3977
  - EXXON
- Permit number 0-2077-2"
  - EXXON
- Permit number 0-3668-2 1/2" EXXON
- Permit number G-1136-2"
- Permit number 0/G-2056
  - EXXON
- Permit number 0-1137
- Permit number 0-3978
  - EXXON
- Permit number 0-2762
  - EXXON
- Permit number G-3220
  - EXXON
- Permit number G-2937-2"
  - EXXON
- Permit number G-3696-2"
  - connects to N5
  - Central P/L
- Permit number 0-3253-6", 4" connects to N5
  - EXXONs
- Permit number G-1872
- Permit number G-1871
- Permit number G-80-155
  - EXXON
- Permit number G-79-171
  - EXXON
- Permit number G-1874

4. Refineries
   - a) sites
     - 1 = Enterprise Mont Belvieu Fractionation Plant NW
     - 2 = Warren Mont Belview Fractionation Plant NW
     - 3 = Union Texas Petroleum Winnie NE
   - b) areas
     - R1 = EXXON Refinery
     - R2 = Mont Belview Refinery Area

   Many companies have holdings in this area. Two large fraction-plants and one gas plant have been located and identified as sites. The rest are listed here as being within this area. They are:

   - Enterprise 2
   - TET 7
   - Dow
   - Cilgo
   - Warren
   - ARCO 3
   - Tenneco
   - Conoco
   - XRAL
   - EXXON
   - DIXIE
   - Warren 3
   - Mobil
   - EXXON 2
   - Diamond Shamrock 2
   - Houston Oil & Mineral

   For locational details consult Mont Belview Detail A sheet of the 1979 Texas County Pipeline and Industrial Atlas

5. Gas processing plants
   - a) sites
     - 1 = Citgo Mont Belvieu Gas Plant NW
     - 2 = UTT Galveston Bay Gas Plant NW
     - 3 = U.G. Galveston Bay Plant NW
     - 4 = Houston O/M, Smith Point Gas Plant SW
     - 5 = Getty Umbrella Point Plant SW
     - 6 = EXXON Ananuac Gas Plant NW
   - b) area
     - No data
6. Compressor, pumping, and metering stations
   - a) sites
     - 1 = AMOCO Compressor Station NW
     - 2 = Hankamer Station NW
     - 3 = Mobay (Station) SW
     - 4 = Jackson Pasture Station SW
     - 5 = AMOCO gathering Station NW
     - 6 = Permian Crude Pumping Station NE
     - 7 = Belview Station NW
   - b) area
     - No data
7. Storage facilities
   - a) site
     - Present
   - b) area
     - S1 = High Island Storage
8. Platforms, offshore
   - Present
9. Platform fabrication yards
   - a) site
     - No data
   - b) area
     - No data
10. Dock facilities
    - a) site
      - No data
    - b) area
      - No data
11. Terminals
    - a) site
      - 1 = Oak Pt. Terminal SW
    - b) area
      - No data
12. Helicopter service
    - a) sites
      - 1 = Smith Point, Houston O/M SW
      - 2 = Baytown, San Jacinto Methodist Hospital SW
      - 3 = Baytown, Baytown Medical Center SW
      - 4 = Baytown, Gulf Oil Chemicals NW
    - b) area
      - No data

B. Mineral Resources

1. Oil fields
   - Present
2. Gas fields
   - Present
3. Sand, gravel, clay, dirt pits
   - Present
4. Sulphur wells, mines
   - No data
5. Geopressured - geothermal area
   - No data
6. Groundwater source
   - Present

MAP NARRATIVE DETAIL -- OIL, GAS, INFRASTRUCTURE, MINERAL RESOURCES

ANGLETON QUADRANGLE (Houston SW)
including parts of Galveston, Brazoria,
Fort Bend, Wharton and Matagorda
counties

A. Oil and Gas Infrastructure
   1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
      a) Onshore
         - 1 = Texas P/L 8" SW-SE-NE
         - 2 = EXXON 4" SW-NW
         - 3 = Scurlock 6" NW
         - 4 = Scurlock 4" NW
         - 5 = AMOCO NE
         - 6 = EXXON 16" SW-NW-NE
         - 7 = Texas P/L 6" SW
         - 8 = Texas P/L 8" SW
         - 9 = Scurlock 6" NW
         - 10 = Phillips 6", Seaway 30" SW
         - 11 = Seaway 30" NW-SW
         - 12 = Phillips 12" NW-SW
         - 13 = Gulf 4" NW-NE
         - 14 = Texas P/L 16" SW-NW-NE
         - 15 = EXXON 6" NW
         - 16 = EXXON 8" SW-NW-NE
         - 17 = Phillips 8" SW-SE-NE
         - 18 = EXXON 8" NW-NE
         - 19 = Texas P/L 6" NE
         - 20 = EXXON 4" NE
         - 21 = Texas P/L 8" NE
         - 22 = EXXON 2-8" NE
         - 23 = ARCO 36" NE
         - 24 = AMOCO 2-8", 12" NE
         - 25 = Gulf 6" NW
         - 26 = EXXON 4" NE
         - 27 = AMOCO 26" NE
         - 28 = Scurlock 4" NE
         - 29 = Gulf 6" NW
         - 30 = Gulf 6" NW
         - 31 = AMOCO NW
      b) Offshore, number boxed
         No data
   2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
      a) Onshore
         - 1 = NGPL 24" NW-SW
         - 2 = FGT 22" NE-SW
         - 3 = TGP 8" SW
         - 4 = TGP 16" SW
         - 5 = Dow 14" SW
         - 6 = EXXON 30", 36" SW
         - 7 = Dow 4" SW
         - 8 = Tenneco 30" SW-NE
         - 9 = TGP 12" SW
         - 10 = Valero 6", 8" SW
         - 11 = TET gathering 3" NE
         - 12 = FGT 8" SW
         - 13 = TGP 4" SW
         - 14 = Phillips 4" SW
         - 15 = NGPL 12" SW
         - 16 = HPL 4" SW
         - 17 = HPL 6" SW
         - 18 = HPL 12" SW
         - 19 = NGPL 12" SW
         - 20 = Dow 12" SW
         - 21 = Valero 20" SW
         - 22 = EXXON 36" NW-SW
         - 23 = EXXON 30" NW-SW
         - 24 = HPL 8" SW
         - 25 = UTT 8" SW
         - 26 = Old Ocean 24" NW-SW
         - 27 = UTT 20" SW
         - 28 = Phillips 6" SW-SE-NE
         - 29 = HNG 16" SE
         - 30 = FGT 20" SW
         - 31 = HPL 4" NW-SW
         - 32 = TET 3" NW-NE-SE
         - 33 = NGPL 12" SW-SE-NE
         - 34 = AMOCO 16" SW-SE-NE

35 = Dow 4" SW
36 = Dow 14" SW
37 = HPL 4" SW
38 = HNG 16" SW-SE
39 = Phillips 6" SW
40 = Phillips 4" SW
41 = Phillips 6" SW
42 = Phillips 4" SW
43 = Phillips 4" SE
44 = Phillips 2" SE
45 = Phillips 4" SE
46 = Coronado 2" SW
47 = TET 30" SW-SE-NE
48 = Delhi 2" SW
49 = Phillips 10" SW
50 = NGPL 6" SW
51 = HNG 12" SW
52 = Red Rooster NE
53 = UTT 6" SW
54 = HPL 18" NE
55 = HPL 16", 30" NE
56 = Dow 8" SE
57 = Dow 24" SE
58 = HPL 4" SE-NE
59 = HPL 6" SE
60 = gathering SE
61 = Trunkline gathering NE
62 = Trunkline gathering NE
63 = HPL 8" SE
64 = Dow 4" SE
65 = HPL 6" SW
66 = Unnamed NE
67 = HPL 16" NE-SE
68 = HPL 3" SE
69 = HPL 6" SE
70 = Dow 24" SE
71 = UTT 20" SE
72 = HPL 6" SE
73 = NGPL gathering to Trunkline NE
74 = Tejas 4" SW
75 = EXXON 24" NE
76 = Phillips 12" SW
77 = HPL 6" NE-SE
78 = AMOCO 8" SE
79 = AMOCO 8" SE
80 = HPL 16" NE-SE
81 = Unnamed SW
82 = HPL 16" SE
83 = HPL 6" SW
84 = TET 4" NE
85 = gathering SE
86 = NGPL 10" NE
87 = NGPL 6" NE
88 = HPL 6" NW
89 = Phillips 8", Valero 20", AMOCO 16" SW
90 = Seagull 3 1/2"SE
91 = HNG 16" NE-SE
92 = HNG 3" NE-SE
93 = HPL 12" SE
94 = HPL 4" SE
95 = UTT 18" NW
96 = UTT 30" NW
97 = HPL 24" NW-NE
98 = HPL 12" NW
99 = UTP 6" SW
100 = UTP 10" SW
101 = UG 4" NW
102 = UG 30" NW
103 = Mobil 14" NW
104 = TET 16" NW
105 = Enserch 16" NW
106 = UTT 8" NW
107 = TET 4" NW
108 = HPL 10" NW
109 = HNG 2" gathering NW
110 = UTT 8" NW
111 = UTT 20" NW
112 = NGPL 24", AMOCO 20" NW-NE-SE
113 = Trunkline 12" NE
114 = TET 8" NE
115 = H&H 4 1/2" NE
116 = TGP NE
117 = Valero 10" NE
118 = HPL 16" NE
119 = UTT 20" NE
120 = Valero 16" NE
121 = AMOCO 20" NE
122 = AMOCO 12" NE
123 = Gulf Tide 3" NE
124 = UTT 24" NE
125 = EXXON 10" NE
126 = HPL 4" NE
127 = EXXON 3" NE
128 = Trunkline 16" NE
129 = UTT 18", 30" NW

130 = Valley 3" SW
131 = Trunkline 16" NE
b) Offshore, number circled
1 = G-3294-2 7/8" General SE
2 = G-4020-4 1/2" General SE
3. Nodes (N) of offshore pipelines - oil and gas
Not applicable
4. Refineries
a) site
1 = Phillips Refinery SW
b) area
No data
5. Gas processing plants
a) sites
1 = Enserch HRU Needville Gas Plant NW
2 = EXXON Pledger Gas Plant SW
3 = AMOCO East Bay City Plant SW
4 = AMOCO Old Ocean Gas Plant SW
5 = EXXON Gas Plant NW
6 = Rowan Field HRU Plant NE
7 = Phillips Brazoria Plant NE
8 = Charter Oil Alta Loma Gas Plant NE
9 = Mobil Martin Ranch Plant SE
b) areas
G1 = Conoco Plant SE
G2 = Monsanto Chocolate Bayou Plant SE
G3 = AMOCO Chocolate Bayou Plant SE
G4 = Stratton Ridge Dome SE
6. Compressor, pumping, and metering stations
a) sites
1 = Big Creek Station NW
2 = Boling Pumping Station NW
3 = South Boling Pumping Station NW
4 = Compressor Station 4 SW
5 = Bay City Pumping Station SW
6 = Phillips Pumping (Gas) Station SW
7 = Old Ocean Station SW
8 = Chocolate Bayou Station NE
9 = Thompson Field Station NW
10 = HPL Meter Station NE
11 = W. Columbia Station SW
12 = Unnamed facility NE
13 = Unnamed facility NW-SW
14 = Unnamed facility SW
15 = Unnamed facility SW
b) area
No data
7. Storage facilities
a) site
Present
b) area
No data
8. Platforms, offshore
No data
9. Platform fabrication yards
a) site
No data
b) area
No data
10. Dock facilities
a) site
No data
b) area
No data
11. Terminals
a) site
1 = San Bernard Terminal SW
b) area
No data
12. Helicopter service
a) sites
1 = Freeport, Freeport Base SE
2 = West Columbia, Columbia Lakes SW

3 = Alta Loma, Pee Wee's SE
b) area
No data

B. Mineral Resources
1. Oil fields
Present
2. Gas fields
Present
3. Sand, gravel, clay, dirt pits
Present
4. Sulphur wells, mines
1 = Boling Active 1975 NW
2 = Long Point Salt Dome Well Active 1975 NW
3 = Damon Mound NW
4 = Nash Dome NW
5 = Clemens SW
6 = Hoskins Mound SE
5. Geopressured - geothermal area
1 = Brazoria Fairway, Frio Formation
6. Groundwater source
Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

BAFFIN BAY QUADRANGLE (Corpus Christi SW) including parts of Kenedy, Kleberg, and Brooks counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
    - a) Onshore
        - 1 = Mobil 8" NW
        - 2 = Permian 4" and gathering NW
        - 3 = EXXON 8" NW
        - 4 = Permian 4" NE
        - 5 = Chevron 6" NE
        - 6 = Permian 3" NW
        - 7 = EXXON 8" NW
        - 8 = EXXON 6" SW
        - 9 = EXXON 4" SW
    - b) Offshore, number boxed
        - 1 = Permit number 0-1067-3" Central P/L NW
        - 2 = Permit number ME-4150-20" No name NE
        - 3 = Permit number No number, no name 6" NE
        - 4 = Permit number No number, no name 8" NE
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
    - a) Onshore
        - 1 = CSGP 6" NW-SW
        - 2 = TET 30" NW-SW
        - 3 = Tenneco 10" SW
        - 4 = Tenngas 16" SW
        - 5 = EXXON 8" SW
        - 6 = EXXON 6" SW
        - 7 = EXXON 8" SW
        - 8 = EXXON 2" SW
        - 9 = EXXON 10" NW-SW
        - 10 = Valero 16" NW-SW
        - 11 = EXXON 6" SW
        - 12 = FGT 12" NW-SW
        - 13 = Delhi 4" SW
        - 14 = EXXON 4" NW
        - 15 = TET 10" NW
        - 16 = EXXON 6" SW
        - 17 = NGPL 16" NW
        - 18 = EXXON 6" NW
        - 19 = CSGP 4" NW
        - 20 = EXXON 8" SW
        - 21 = HPL 12" NE
        - 22 = HPL 8" NE
        - 23 = CSGP 12" NW
        - 24 = EXXON 4" SW
        - 25 = EXXON 8" SW
        - 26 = EXXON 20", 24" NW-NE
        - 27 = EXXON 24" NW
        - 28 = EXXON 6" SW
        - 29 = TET 4" NW
        - 30 = TET 8" NW
        - 31 = CSGP 3" NW
        - 32 = HPL 8" NW
        - 33 = Valley 6" NW
        - 34 = CSGP 2 1/2" NW
        - 35 = Celanese 10" NW
        - 36 = HPL 16" NW
        - 37 = TGP 16", 26" NW
        - 38 = CSGP 10" NW
        - 39 = FGT 6" NW
        - 40 = CSGP 2" NW
        - 41 = Cities Service 4" NW
        - 42 = CSGP 8" NW
        - 43 = Coronado 2" NW
        - 44 = NGPL 36", 26" NW
        - 45 = Transco 24" NW
        - 46 = EXXON 3" NW
        - 47 = EXXON 10" NW
        - 48 = EXXON 6" SW
        - 49 = CSGP 4" NW
        - 50 = HPL 4", CSGP 2", TET 30" NW

51 = HPL 2" NW
52 = Gas 6" Connects TET and Tenngas lines SW
53 = TET 4" NW
54 = EXXON connector SW
55 = EXXON 6" SW
56 = Tenngas 8" (stops at 27° N)
57 = CSGP 10"
58 = Delhi 6" NW
59 = Valero 16" NW-SW
60 = CSGP 20" NW

b) Offshore, number circled
  1 = Permit number G-2419-8 5/8", FGT SE
  2 = Permit number G-79-227-4 1/2", FGT SE
  3 = Permit number G-2174-3 1/2", Haas NE
  4 = Permit number G-4165-4", HPL NE
  5 = Permit number G-2618-10", FGT NE
  6 = Permit number G-1346-4", Texaco NE
  7 = Permit number G-1697-4", TET NE
  8 = Permit number G-2790-3 1/2", King NE
  9 = Permit number G-2849-10", Chevron NE
  10 = Permit number G-3821-10", TET NE
  11 = Permit number G-3545-12", TET 12" NE
  12 = Permit number G-3860-8" CSGP NW
  13 = Permit number G-3520-4" CSGP NW
  14 = Permit number G-991-6 5/8" UTT NW

3. Nodes (N) of offshore pipelines - oil and gas
  None

4. Refineries
  a) site
    No data
  b) area
    No data

5. Gas processing plants
  a) sites
    1 = Chevron Gas Plant NW
    2 = EXXON Sarita Gas Plant NW
    3 = Cities Service May Gas Plant NE
  b) area
    No data

6. Compressor, pumping, and metering stations
  a) sites
    1 = Simico Compressor Station NW
    2 = Alazon Station NW
    3 = Sarita Station SW
    4 = Rita Station SW
    5 = Cities Service Separation Plant NW
  b) area
    No data

7. Storage facilities
  a) site
    Present
  b) area
    No data

8. Platforms, offshore
    Present

9. Platform fabrication yards
  a) site
    No data
  b) area
    No data

10. Dock facilities
  a) site
    No data
  b) area
    No data

11. Terminals
  a) site
    No data
  b) area
    No data

12. Helicopter service
  a) site
    1 = Corpus Christi - Chevron USA, Inc. Padre Island NE

b) area
No data

B. Mineral Resources
1. Oil fields
Present
2. Gas fields
Present
3. Sand, gravel, clay, dirt pits
Present
4. Sulphur wells, mines
No data
5. Geopressured - geothermal area
1 = Armstrong fairway, Frio formation SW
6. Groundwater source
Present

BEST COPY AVAILABLE

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

BEEVILLE QUADRANGLE (Beeville SW)
including parts of Aransas, Bee, Goliad, Jim Wells, Refugio and San Patricio counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines

a) Onshore

1 = EXXON 4" NE
2 = Sun 6" NE-SE
3 = EXXON 16" NE-SE
4 = Sun 4" SW
5 = EXXON 10", 12" NE
6 = EXXON 3" NW-NE
7 = Sigmor 8" NW-NE
8 = FINA 10" NW-NE
9 = Sun 8" SE
10 = EXXON 2-8", 12", 16" SE
11 = Sun 6" SE
12 = Sun 4" SE
13 = Permian 3" SE
14 = Sun 4" SE
15 = Sigmor 8" NW
16 = Sun 6" SE
17 = Permian 3" SE
18 = Sun 6" SE
19 = Sun 4" SE
20 = Sun 4" SE
21 = Union Pacific 8" SE
22 = Sun 4" SE
23 = EXXON 2-10" SW-NW
24 = Sun 4" SW
25 = gathering for Sun 4" SW
26 = Sun 8" NW-NE-SE
27 = Sun 6" SW
28 = Sun 4" SW
29 = EXXON 6" SE
30 = gathering for EXXON 10", 12" NE
31 = Permian 8" SE
32 = Burke 3" NE
33 = Sun 2" NE
34 = Permian 6" NW
35 = Permian 6" NW
36 = Sun 4" SE
37 = Sun 4" SW
38 = Sun 10" NE
39 = Sun 4", 8" SE
40 = Permian 4" SE

b) Offshore, number boxed

1 = Permit number O/G-1462, 1/2", 3", EXXON SE
2 = Permit number 0-80-085-3", Tenneco SE
3 = Permit number 0-80-085-8", Tenneco SE
4 = Permit number O/G-1463-1 1/2", 3", EXXON SE
5 = Permit number O/G-79-1150-3", Getty SE
6 = Permit number 0-3637-4", Houston O/M SE
7 = Permit number O/G-4006-2", CSGP SE
8 = Permit number O/G-1465 1 1/2", 3" SE
9 = Permit number O/G-4151-6", Corpus Christi SE
10 = Permit number O/G-2942-2 1/2", Hunt Oil Co. SE

11 = Permit number 0-4164-2 1/2", Hunt Oil Co. SE
12 = Permit number O/G-3289-2 1/2", Hunt Oil Co. SE
13 = Permit number 0-870-2", 3", Hunt Oil Co. SE
14 = Permit number 0-4108-2 7/8", McMoRan SE
15 = Permit number O/G-4036-6", Phillips SE
16 = Permit number O/G-3754-8", 4", Phillips SE
17 = Permit number 0-1753-6" SE
18 = Permit number 0-975-3 1/2" SE
19 = Permit number O/G-3500-4", McCormick O/G SE
20 = Permit number O/G-534-2" SE
21 = Permit number O/G-2852-2-2", Perry R. Bass SE
22 = Permit number 0-3881-3 1/2", EXXON SE
23 = Permit number O/G-3791-3 1/2", Houston O/M SE
24 = Permit number O/G-4151-6", Sun SE
25 = Permit number 0-4115-4" SE
26 = Permit number 0-1722-6" SE
27 = Permit number 0-1515-2-4", 8" SE

2. Gas pipelines: single line, one pipeline; double-width line two or more pipelines

a) Onshore

1 = Enserch 6" NE
2 = UG NE
3 = UG NE
4 = Delhi 4 1/2" NE
5 = TGP 6" SE
6 = Valero 30" NW-SE
7 = HPL 16" NE
8 = Enserch 12" SE
9 = NGPL SE
10 = Enserch 4" SE
11 = Texana 4" SE
12 = Connecting Texana & UG SE
13 = TGP 4" SW
14 = Texana gathering SE
15 = Transco 26" NE
16 = TGP 2-30", 24" SW
17 = TGP 6" NE
18 = NGPL 26", 30" SW
19 = NGPL 10" NW-NE
20 = TET 30" SE-NE
21 = Tenneco 30" SE-NE
22 = FGT 20" SE-NE
23 = EXXON 30", 36" SW-SE-NE
24 = HPL 18" NE
25 = UG 18" NW-NE
26 = HPL 4" NE
27 = NGPL 10" NE
28 = UTT 10" NE
29 = UG 16", 30" NE
30 = UG 16" SE-NE
31 = UG 24" SW-SE-NE
32 = Enserch 8" SE
33 = HPL 4" SE
34 = HPL 16" NW-NE
35 = UTT 10" NE
36 = UTT gathering NE
37 = EXXON 14" NE
38 = Texana SE
39 = TGP 10" SE
40 = UG 20" SE
41 = Seagull 4 1/2" SE
42 = TGP 10" NE
43 = TGP 4" NE
44 = UG gathering NE
45 = Enserch 3" NE
46 = Delhi NE
47 = HPL gathering 4" NE
48 = Bexar 4" NE
49 = Unnamed SE

50 = Unnamed SE
51 = Enserch 14" SE
52 = Enserch 14" SE
53 = UG gathering NE
54 = UG gathering NE
55 = UG gathering NE
56 = FGT 6" SE
57 = Unnamed SE
58 = UG 4" SE
59 = Transco 14" NW-SW
60 = Unnamed SW
61 = TGP 8" SE
62 = TET 8" SE
63 = TGP 6" SE
64 = TET 4" SE
65 = HPL 18" SE
66 = HPL 16" SE
67 = HNG 6" SE
68 = HNG 4" SE
69 = Delhi 2", 4" SE
70 = Delhi 4" SW
71 = CSGP 6" SW
72 = CSGP 6" SW
73 = Trunkline 20" NE-NW-SW
74 = HPL 18" NW-SW
75 = Valero 3"
76 = UG 14" NW-SW
77 = Seadrift 8" NE
78 = Gas Systems 3 1/2" NE
79 = HPL 16" NW
80 = Valero 3" SW
81 = CSGP gathering NW
82 = CSGP gathering NW
83 = CSGP 30" NW
84 = Delhi 2" NE
85 = CSGP 6" NW
86 = HPL 2" NW
87 = Ferguson Crossing 2" NW
88 = CSGP 8" NW
89 = TET 14" NW
90 = Transco 24" NW
91 = Ferguson Crossing 2" NW
92 = Transco 6" NW
93 = CSGP gathering 4" NW
94 = Malone NW
95 = HNG NW
96 = CSGP 6" NW
97 = Delhi 6" SW
98 = Delhi 4" SW
99 = Seagull NW
100 = Tenneco 12" SE
101 = NGPL 4" SE-NE
102 = HNG 12" SE
103 = CSGP 6" NW
104 = Valero 14" SE
105 = Aransas 4" SE
106 = Seagull SE
107 = Valley 8" SW
108 = Delhi 4" SW
109 = Seagull 3" SW
110 = Alamos SW
111 = Valero SW
112 = Valero 6" NW
113 = Valley 3" SW
114 = Esperanza 2" SW
115 = Valero SW
116 = Transco 2 1/2" NW
117 = Valley 6" SW
118 = Unnamed SE
119 = Seagull connection SE
120 = UG NE
121 = Unnamed SE
122 = Delhi 2" SE
123 = HPL 2" SW
124 = Alamos abandoned NW
125 = Alamos 4" SW
126 = Coronado 2" SW
127 = HPL 4" NW
128 = Connection between Transco 14" & CSGP 30" SW
129 = TET 8" SE
130 = Aransas 3" SE
131 = UG gathering NE
132 = UG gathering NE
133 = gathering SE & NE
134 = gathering SE
135 = UG gathering NW
136 = Delhi gathering SE
137 = Valero 3" SW
138 = Valero 3" SW
139 = Enserch 14" NE
140 = Delhi 4" NE

141 = UG gathering NE
142 = UG NE
143 = CSGP 2" SW
144 = UG SW
145 = NGPL 8" SE-NE
146 = NGPL 8" SE-NE
147 = TGP 4" NE
148 = Transco 24" SW-NE
149 = HPL 18" NW
150 = Valero 3" SW
151 = Valero 5" SW
152 = Valero 6" SW
153 = UG 20" SE
154 = CSGP gathering SW
155 = Tenneco 12" NE
156 = TET 30" NE
157 = Enserch 8" NE
158 = CSGP 4" SW
159 = CSGP 3" SW
160 = CSGP 2"SW
161 = CSGP 3" SW
162 = CSGP 2" SW
163 = CSGP 2" SW
164 = Coronado 2" SW
165 = Delhi 4" SW
166 = Delhi 4" SW
167 = CSGP 6" NW
168 = CSGP 6" NW
169 = Valero 20" SE
170 = CSGP gathering NW
171 = CSGP gathering NW
172 = CSGP gathering NW
173 = CSGP gathering NW
174 = CSGP gathering NW
175 = UG gathering NE
176 = UG gathering NE
177 = UG 30" NE
178 = UG gathering NE
179 = UG gathering NE
180 = HPL 6" NE
181 = UG gathering NE
182 = UG gathering NE
183 = UG gathering NE
184 = UG gathering NE
185 = UG gathering NE
186 = UG gathering NE
187 = UG gathering NE
188 = gathering for EXXON 30", 36" SE
189 = Valero gathering SE
190 = Enserch 7" SE
191 = Enserch 6" SE

b) Offshore, number circled
1 = Permit number G-3503-10 3/4", NGPL SE
2 = Permit number ME-4028-4 1/2", EXXON SE
3 = Permit number G-3472-6 5/8", NGPL SE
4 = Permit number G-2179-3" SW
5 = Permit number G-2357-3", HPL SE
6 = Permit number G-2357-3" SE
7 = Permit number G-1749-2 1/2", EXXON SE
8 = Permit number G-79-178 6", Tenneco SE
9 = Permit number G-2179-8", HPL SE
10 = Permit number G-1749-2 1/2", EXXON SE
11 = Permit number G-697-12", No data SE
12 = Permit number G-3425-12", Tenneco SE
13 = Permit number G-1757-2" SE
14 = Permit number G-1756-2" SE
15 = Permit number G-1825-4 1/2", Tejas abandoned SE
16 = Permit number G-2357-3", HPL SE
17 = Permit number G-2375-3", HPL SE
18 = Permit number G-12", Tenneco
19 = Permit number G-12", Tenneco

3. Nodes (N) of offshore pipelines - oil and gas

N1 includes in order SE
  Permit number G-1017-2 1/2", Cities Service
  Permit number O-1022-2 1/2", Cities Service
  Permit number O-2502-2 1/2", O-1023-2 1/2", Cities Service

BEST COPY AVAILABLE

Permit number O-3158-2 1/2"-2, Cities Service
Permit number O-3953-2 1/2", Cities Service
Permit number O-3027-2 1/2"-3, Cities Service
Permit number O-3952-2 1/2", Cities Service
Permit number O-1106-2 1/2", Cities Service
Permit number O-1107-2 1/2", Cities Service
Permit number O-3959-2 1/2"-2
Permit number O-2647-2 1/2"-1, Cities Service
Permit number O-3954-2-2 1/2", Cities Service
Permit number O/G-2996-8 5/8", ALCOA
Permit number O-3504-2-2 1/2", Cities Service
Permit number O-2583-2 1/2"
Permit number O-2610-2-2 1/2", Cities Service
Permit number O-2 1/2"
Permit number O-1376-3", Royal Oil and Gas Corp.
Permit number O-3280-2" ALCOA
Permit number O-3604-2 1/2"-2, Cities Service
Permit number O-1313-4", Wm. Herbert Hunt Trust Estate
Permit number O-1313-3 1/2", Wm. Herbert Hunt Trust Estate

N2 includes, in order SE
Permit number O/G-1112-2 1/2", Phillips
Permit number O-1757-4", Phillips
Permit number O/G-1112-2 1/2", Phillips
Permit number O-650-2", Phillips
Permit number O-2050-4", Phillips
Permit number O-1514-2-4" 8"
Permit number O-662-2-2", Phillips

N3 includes, in order SE
Permit number G-1756-2", Phillips G-2116-2", G-1757-2"
Permit number O/G-4036-2", Phillips
Permit number O/G-2", 6", 8"
Permit number O-2509-2 1/2"-2, Powers Operating Co.
Permit number O/G-620-3", Phillips
Permit number O-1757-2", Phillips

N4 includes, in order SE
Permit number O-1758-3", Phillips 3", 3" No data
Permit number O-1758-2"
Permit number O-1758-3"

N5 includes, in order SE
Permit number O/G-3497-4", Houston O/M
Permit number O-3664-4", Phillips
Permit number O/G-3496-4", Houston O/M
Permit number O-3609-4", O-3498-4", Houston O/M
Permit number O-3613-4", O-3702-4", Houston O/M
Permit number O-3655-4", Houston O/M
Permit number O-3502-4" Houston O/M

4. Refineries
    a) site
        No data
    b) area
        No data

5. Gas processing plants
    a) sites
        1 = Hewitt & Daugherty Roche Gas Plant SE
        2 = Marathon Welder Gas Plant SE
        3 = Warren Encinal Gas Plant SE
        4 = Superior Portilla Gas Plant SE
        5 = AMOCO Larosa Plant SE
        6 = ARCO Refugio Gas Plant NE
        7 = U.G. Refugio Plant NE
        8 = HNG Refugio Plant NE
        9 = Mellon Pasture Gas Plant NE
        10 = Hewitt & Dougherty Lambert Plant NE
        11 = EXXON Tom O'Conner and United Gas Greta NE
        12 = U.G. Refugio Plant NE
        13 = Lake Pasture Gas Plant NE
        14 = Tenneco Pearce Gas Plant SE
    b) area
        No data
6. Compressor, pumping, and metering stations
    a) sites
        1 = Wilman Station SW
        2 = E. Mathis Station SW
        3 = Christman Station SW
        4 = North Pasture Station SW
        5 = Sim Station SW
        6 = Encino Station SE
        7 = Welder Station SE
        8 = Taft Station SE
        9 = Powers Station NE
        10 = Refugio Station NE
        11 = Transco Station No. 20 NE
        12 = Refugio Station, No. 2 Station NE
        13 = New Quintana Station NE
        14 = Defense Station SE
        15 = Unnamed Station SE
        16 = Unnamed Station SE
        17 = Unnamed Station SE
        18 = Unnamed Station NE
        19 = Unnamed Station NW
        20 = Mathis Station NE
        21 = Unnamed Station NE
    b) areas
        No data
7. Storage facilities
    a) sites
        Present
    b) areas
        No data
8. Platforms, offshore
        No data
9. Platform fabrication yards
    a) sites
        No data
    b) areas
        No data
10. Dock facilities
    a) sites
        No data
    b) areas
        No data
11. Terminals
    a) sites
        No data
    b) areas
        No data
12. Helicopter service
        No data

B. Mineral Resources
1. Oil fields
        Present
2. Gas fields
        Present
3. Sand, gravel, clay, dirt pits
        Present
4. Sulphur wells, mines
        No data
5. Geopressured - geothermal area
    1 = Corpus Christi Fairway, Frio Formation
6. Groundwater source
        Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

BROWNSVILLE QUADRANGLE (Brownsville N/2, S/2) including part of Cameron County

A. Oil and Gas Infrastructure
- 1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
  - a) Onshore
    - No data
  - b) Offshore, number boxed
    - No data
- 2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
  - a) Onshore
    - 1 = CSGP (RGV) 10" NW-NE
    - 2 = CSGP (RGV) 10" NW
    - 3 = Seadrift 16" NE
    - 4 = CSGP (RGV) 6" NE
    - 5 = CSGP (RGV) 6" NE
  - b) Offshore, number circled
    - No data
- 3. Nodes (N) of offshore pipelines - oil and gas
  - No data
- 4. Refineries
  - a) site
    - 1 = Union Carbide Brownsville Plant NE
  - b) area
    - No data
- 5. Gas processing plants
  - a) site
    - 1 = Brownsville Gulf NE
  - b) area
    - No data
- 6. Compressor, pumping, and metering stations
  - a) site
    - No data
  - b) area
    - No data
- 7. Storage facilities
  - a) site
    - Present
  - b) area
    - No data
- 8. Platforms, offshore
  - No data
- 9. Platform fabrication yards
  - a) site
    - 1 = Marathon - Le Tourneau, Port of Brownsville NE
  - b) area
    - No data
- 10. Dock facilities
  - a) sites
    - 1 = Oil Dock No. 1 NE
    - 2 = Oil Dock No. 2 NE
    - 3 = Oil Dock No. 4 NE
    - 4 = Oil Dock No. 3 NE
    - 5 = Liquid Cargo Dock NE
  - b) area
    - No data
- 11. Terminals
  - a) site
    - 1 = EXXON Brownsville Terminal NE
  - b) area
    - No data
- 12. Helicopter service
  - a) site
    - 1 = Brownsville International Airport NE
  - b) area
    - No data

B. Mineral Resources
- 1. Oil fields
  - Present

2. Gas fields
    Present
3. Sand, gravel, clay, dirt pits
    No data
4. Sulphur wells, mines
    No data
5. Geopressured - geothermal area
    1 = Hidalgo fairway, Frio formation
6. Groundwater source
    Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

CORPUS CHRISTI QUADRANGLE (Corpus Christi NW) including all or parts of Aransas, Jim Wells, Kleberg, Nueces and San Patricio counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines

a) Onshore

1 = Mobil 8" NW
2 = CSGP 5 1/2" NW
3 = CSGP gathering NW
4 = CSGP 4" NW
5 = gathering for CSGP NW
6 = gathering for CSGP 6" NW
7 = Sun 2-4" NW
8 = Sun NW
9 = Sun 10" SW-NW-NE
10 = EXXON 12" NE
11 = EXXON 2-8", 12", 16" NE
12 = EXXON 10", 12", SW-NW-NE
13 = Sun 10" NE
14 = Sun 6", 8" SW-NW-NE
15 = Sun 6" NE
16 = Permian 8" NE
17 = Champlin 8" NE
18 = Sun 6" NW-NE
19 = CSGP 8" NW
20 = EXXON 2-8" SW-NW- NE
21 = CSGP 6" SW
22 = Permian 6" SW-NW-NE
23 = Permian 3" SW
24 = Permian 3" SW
25 = Permian 3" SW
26 = gathering for Sun 4" SW
27 = CSGP gathering 4" SW
28 = CSGP gathering 4" SW
29 = CSGP gathering SW
30 = gathering for Permian 6" SW
31 = gathering for Permian 6" SW
32 = EXXON 4" SE
33 = EXXON 8" SW
34 = Permian 4" SW
35 = CSGP 3", 4", 5 1/2" NW-SW
36 = Sun 4" SW
37 = Mobil 8" SW-NW-NE
38 = gathering for Sun 4" NW
39 = Sun 6" SW-SE-NE
40 = EXXON 6" SE-NE
41 = EXXON 2-10", 12" NE
42 = gathering for Sun 6" SW
43 = Sun 6" NE
44 = Sun 8" NE
45 = Sun 6" NE
46 = Permian 4" NE
47 = Sun NW
48 = gathering for CSGP SW
49 = CSGP NW
50 = gathering for EXXON 12" SW
51 = Sun 6" NW
52 = Sun 4" NW
53 = Sun gathering NW
54 = Sun 3" NW
55 = Sun 2" NW
56 = Permian 6" NE
57 = Sun 6" NE
58 = EXXON 6", 10", 16" NE
59 = Unnamed SW
60 = Unnamed SW
61 = Unnamed SW
62 = Southern 4" NW
63 = FINA 10" NE

64 = Sun 6" NW
65 = Sun 6" NW
66 = CSGP 4" SW
67 = CSGP 4" SW
68 = Sun 6" SW
69 = Sun 4 1/2" SW
70 = gathering Sun 4" SW
71 = Sun 4" NW
72 = Permian 8" NE
73 = Tesoro 4" SW
73 = CSGP 8" NE

b) Offshore, number boxed
1 = Permit number O/G-3148-4", McMoRan SE
2 = Permit number O-1763-2" SE
3 = Permit number O-779-4"
4 = Permit number O-2176-6" 1
5 = Permit number ME-4150-8" SE
6 = Permit number O/G-3531-6 5/8" McMoRan SE
7 = Permit number ME-4150-20" SE
8 = Permit number O/G-3496-2-8", Houston O/M NE
9 = Permit number O-80-085-8", Tenneco NE
10 = Permit number O-2024-2 7/8" NE, O-3524-2 1/2", Gulf NE
11 = Permit number O-2662-2 7/8", ALCOA NE
12 = Permit number O-2519-2 1/2" Culberson Well Service NE
13 = Permit number O-3462-2-2 7/8", Mobil NE
14 = Permit number O/G-3848-3 1/2" Tamarack Pet. NE
15 = Permit number O/G-3620-3 1/2", O/G-3787-3 1/2" Tamarack Pet. NE
16 = Permit number O-1512-2", Phillips NE
17 = Permit number O/G-3940-2 7/8", McMoRan
18 = Permit number O-4064-4", C. B. Marino SE
19 = Permit number O-4065-2 1/2"-2, C. B. Marino SE
20 = Permit number O-4174-2 1/2", Cities Service NE
21 = Permit number O-1438-2 1/2", Cities Service NE
22 = Permit number O-3383-2 1/2" NE
23 = Permit number O-3382-2 1/2", Cities Service NE
24 = Permit number O-1837-2 1/2"-2, Cities Service NE
25 = Permit number O-1498-2 1/2", Cities Service NE
26 = Permit number O-1499-2 1/2", Cities Service, O-1842-2 1/2", Cities Service NE
27 = Permit number O-1496-2 1/2" NE
28 = Permit number O-1345-2 1/2", Cities Service NE
29 = Permit number O-1844-2 1/2", Cities Service NE
30 = Permit number O-1538-2 1/2", Cities Service NE
31 = Permit number O-4175-2 1/2"-2, Cities Service NE
32 = Permit number O-4066-2 1/2", C. B. Marino NE
33 = Permit number O/G-3250-2 1/2", Shell NE
34 = Permit number O/G-38[illegible]5-2 1/2", McMoRan NE

BEST COPY AVAILABLE

35 = Permit number 0-2488-2", Shell NE
36 = Permit number 0-2648-2 7/8"-2, Valero gathering NE
37 = Permit number O/G-2441-2", Perry R. Bass NE
38 = Permit number 0-1068-2 1/2", Gulf SE
39 = Permit number 0-2457-4", Shell SE
40 = Permit number 0-1027-3", Gulf SE
41 = Permit number 0-3945-4", Transco SE
42 = Permit number 0-3415-6", Energy SE
43 = Permit number 0-2892, Sun SE
44 = Permit number 0-1594-2 1/2", Cities Service SE
45 = Permit number 0-3279-2 7/8", C. B. Marino NE
46 = Permit number 0-3883-3", Cities Service SE
47 = Permit number 0-2724-2", Sun NE
48 = Permit number 0-2735-2", Sun NE
49 = Permit number 0-3182-2 1/2", EXXON SE
50 = Permit number 0-1298-2 1/2", EXXON SE
51 = Permit number 0-3176-2 1/2", Shell, EXXON, 0-1113-2 1/2", 2", EXXON SE
52 = Permit number 0-1906-2", CSGP gathering SE
53 = Permit number 0-1295-2 1/2", EXXON SE
54 = Permit number 0-1299-2 1/2", EXXON SE
55 = Permit number 0-2775-2-2 1/2", EXXON SE
56 = Permit number 0-1267-2 1/2", EXXON SE
57 = Permit number 0-2450-4 1/2", McMoRan SE
58 = Permit number 0-1270-2 1/2", EXXON SE
59 = Permit number 0-1271-2 1/2", EXXON, 0-667-4", 0-1268-2 1/2", EXXON SE
60 = Permit number 0-1265-2 1/2", EXXON SE
61 = Permit number 0-3159-2", EXXON SE
62 = Permit number O/G-4105-8",6",3 1/2", EXXON SE
63 = Permit number O/G-3534-3 1/2" McMoRan NE
64 = Permit number O/G-4105-6", 8", EXXON, O/G-3973-7 5/8", O/G-3980-6" SE
65 = Permit number 0-3165-2 1/2", EXXON, 0-1255-2 1/2", EXXON, 0-1251-2 1/2", EXXON, 0-3164-2", EXXON SE
66 = Permit number 0-3163-2 1/2", EXXON, 0-1683-2", EXXON, 0-1259-2 1/2", EXXON, 0-3161-2 1/2", EXXON, 0-3160-2 1/2", EXXON SE
67 = Permit number 0-1666-3-3 1/2", 2", EXXON, 0-3178-2 1/2", 8", EXXON SE
68 = Permit number 0-1302-2", EXXON SE
69 = Permit number 0-1675-8", Permian NE
70 = Permit number 0-1675-8", Permian NE
71 = Permit number 0-3870-8", Permian NE

2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
   a) Onshore

1 = FGT 6" NE
2 = Texana 4" NE
3 = HNG gathering 8" SW
4 = HNG 12" NE
5 = TET 8" NE
6 = Valero 14" NE
7 = Valero 8" NE
8 = Seagull NE
9 = Unnamed NE
10 = Valero 12" SW
11 = Valero 6" NE
12 = TET 6" NE
13 = Valero 4" NE
14 = Valero 4" NE
15 = Valero 2 1/2" NE
16 = Valero 2" NE
17 = Valero 2 1/2" NE
18 = Valero 4" NE
19 = Delhi 4" NW
20 = TGP 4" NW
21 = HPL 6" NE
22 = HPL 16" NE
23 = UG 20" NE
24 = TET 3" NE
25 = UG 16" NW-NE
26 = TET 30" SW-NW-NE
27 = Valero 6" NE
28 = Delhi NE
29 = HPL 16"
30 = HNG 4" NE
31 = HPL 4" NE
32 = Valero 6" NE
33 = Valero 2 1/2" NE
34 = FGT 12" NW
35 = Valero 10" NW-NE
36 = UG NE
37 = HPL 18" NE
38 = UG 4" NE
39 = UG 6" NW-NE
40 = CSGP 20" SW-NW-NE
41 = FGT 20" NE-NW
42 = Tenneco 30" NW-SW
43 = HPL 14" NE
44 = Coronado NE
45 = TGP 12", 16", 26" NW-SW
46 = NGPL 26", 36" NW-SW
47 = Transco 24" NW-SW
48 = UG 24" NW
49 = EXXON 30", 36" NW-SW
50 = HPL 8" NW
51 = TET 3" NW
52 = HPL 12" makes loop in Corpus Christi and continues NW-NE
53 = Delhi 7" NE
54 = Delhi 4" NW
55 = Unnamed 3" NW
56 = CSGP 4" NW
57 = TET 4" NE
58 = TET 3" NE
59 = gathering for HPL 18" SW
60 = Energy gathering SW
61 = gathering for TET 4" SW
62 = Trunkline 20" NW
63 = UG 14" NW
64 = Valley 8" NW
65 = UG 18" NW-SW
66 = Valley 6" NW
67 = UG 8" NW
68 = TMA, Allan Gas Line NW
69 = CSGP 4" NW
70 = Summitt NW
71 = NGPL 20" NW
72 = Cities Service 8" NW
73 = CSGP 6" NW
74 = Nue-Wells 4" NW
75 = Cities Service 4" NW
76 = CSGP 8" SW
77 = Southern Natural 20" SW
78 = HPL 8" SW
79 = HPL 4" SW
80 = Delhi 8" SW
81 = HPL 8" SE
82 = Haas 4" SE
83 = TET 12" SE-SW
84 = HPL 12" SE
85 = Valley 6" SW
86 = EXXON 3" SW
87 = EXXON 20", 24" SE
88 = Delhi 8" SW-NW
89 = EXXON 10" SE
90 = HPL 12" SE
91 = Coronado
92 = Delhi 6" NW
93 = Valero 10" SE

94 = Valero 8" SE
95 = HNG 8" SW
96 = HPL 6" SW
97 = FGT 12" SW
98 = HPL 8" SW
99 = Celanese 10" SW
100 = NGPL 16" SW
101 = TGP 16", 26" SW
102 = HPL 16" SW
103 = EXXON 20" NW-SW
104 = gathering for TET 30" SW
105 = TGP connector between Tenneco 30" NW and Transco 34" NW
106 = Valero 16"
107 = Sun 3", 4" NW
108 = Valero 16" NW
109 = gathering for HNG 8" SW
110 = FGT 4" NE
111 = gathering for HNG 8" SW
112 = Texaco 8" SW
113 = Valero 4" SW-SE
114 = CB 6" SW-SE-NE
115 = Delhi 10" NW-NE
116 = Valley 2" NW
117 = Valero 4" NW
118 = Delhi 4" NW-SW
119 = Valero 8" NW-NE
120 = Transco 8" SW
121 = HPL 6" SW
122 = HPL 12" SW
123 = Sun 4" NW-SW
124 = UG 3" SW
125 = Delhi 3" SW
126 = EXXON 6" SW
127 = EXXON 6" NW
128 = Coronado 2" NW
129 = UG gathering lines 3" SW
130 = FGT 6" SE
131 = Cities Service 4", 8" NE
132 = TET 4" NE
133 = HPL 18" NE
134 = Cities Service 4" NW
135 = Cities Service 4" NW
136 = Valero 6" SE
137 = FGT 2 1/2" SE
138 = gathering for EXXON 6" NW
139 = Energy gathering SW
140 = Valero gathering NW
141 = Esperanza 6" NE-SW
142 = Valero 2" NE
143 = UG 20" NE
144 = Ferguson Crossing 4" SW
145 = Valero gathering NE
146 = HNG 4" Ne
147 = Valero 14" SE
148 = Delhi 6" NW
149 = FGT 6" SE
150 = CSGP 3" NW
151 = Unnamed 3" NW
152 = CSGP 2" NW
153 = CSGP 4" NW
154 = CSGP 3" NW
155 = EXXON 10" SE
156 = EXXON 12" SE
157 = TET 4" SE
158 = TET 4" SE
159 = HPL 6" SE
160 = HPL 6" SE
161 = Transco SW
162 = Delhi 4" SW
163 = Transco 4" SW
164 = Valero 4" SW
165 = Valley 8" SW
166 = Energy gathering SW
167 = HNG gathering SW
168 = Energy gathering SW
169 = HPL 8" SW
170 = Cities Service 8" NW
171 = Cities Service NW
172 = TGP 12" SW
173 = Cities Service SW
174 = Delhi 4" SW
175 = TGP 12", 16", 24" SW-NW
176 = NGPL 30" SW
177 = TET 3" NW
178 = CSGP 6" NW
179 = UG gathering NW
180 = UG gathering NW
181 = UG gathering NW
182 = UG gathering NW
183 = UG gathering NW

184 = Unnamed 4" NW
185 = Unnamed 4" NW
186 = Unnamed 4" NW
187 = Unnamed 4" NW
188 = Delhi 4" NW
189 = UG gathering NE
190 = Valley 6" NE
191 = UG 24" NE
192 = gathering for TET 30" NE
193 = UG 20" NE
194 = Valero 4" SE
195 = TET 6" NE
196 = HPL 6" NE
197 = FGT 6" SE
198 = FGT 6" SE
199 = HPL 12" NE

b) Offshore, number circled
1 = Permit number G-902-3"-1, Carre SE
2 = Permit number G-1965-3 1/2", FINA SE
3 = Permit number G-2192-8", Trunkline SE
4 = Permit number G-79-311-4 1/2", NGPL SE
5 = Permit number G-1697-4", TET SE
6 = Permit number G-79-133-6", EXXON SE
7 = Permit number G-1879-4 1/2", EXXON SE
8 = Permit number G-2217-3", EXXON
9 = Permit number G-4131-6", FGT SE
10 = Permit number G-2513-6", FGT SE
11 = Permit number G-2561-5.548", Reynolds SE
12 = Permit number G-1803-6", FGT SE
13 = Permit number G-1807-8", FGT SE
14 = Permit number G-2791-2 1/2" NE
15 = Permit number G-3341-10 3/4", Reynolds SE-NE
16 = Permit number G-1522-12 3/4", FGT NE
17 = Permit number G-80-084-4" & 10", HPL NE
18 = Permit number G-3886-6", FGT NE
19 = Permit number G-2895-12 3/4", HPL G-1461-2 1/2"-2, NE-SE
20 = Permit number G-4045-4 1/2" NE
21 = Permit number G-4031-4", FGT NE
22 = Permit number G-3545-12", TET 12" SE
23 = Permit number gathering for Haas SE
24 = Permit number gathering for Haas SE
25 = Permit number G-3414-6, NE
26 = Permit number G-2893-6 5/8", HPL SE
27 = Permit number G-2885-6", EXXON SE
28 = Permit number G-2058-12", Tenngas NE-SE
29 = Permit number G-08-084-16" & 4", HPL NE
30 = Permit number G-1541-12", UG NE
31 = Permit number G-2349-16", UG NE
32 = Permit number G-3876-12", UG NE-SE
33 = Permit number G-2078-6", UG NE
34 = Permit number G-1952-10", UG NE
35 = Permit number G-2359-10", UG NE
36 = Permit number G-1414-12", G-3371-12", Tenngas NE
37 = Permit number G-3641-2 7/8", Jake L. Hamon NE

38 = Permit number G-3493-2 7/8", Jake L. Hamon NE
39 = Permit number G-4176-2 1/2", Cities Service NE
40 = Permit number G-1371-3 1/2", ARCO NE
41 = Permit number G-740-2 1/2", Cities Service NE
42 = Permit number G-739-2 1/2", Cities Service NE, G-1841-2 1/2", Cities Service NE
43 = Permit number G-2281-2 1/2", Cities Service NE
44 = Permit number G-2463-2 1/4", Cities Service NE
45 = Permit number G-1840-2 1/2", Cities Service G-738-2 1/2", Cities Service NE
46 = Permit number G-3292-3", Jake L. Hamon NE
47 = Permit number G-3293-2 1/2", Jake L. Hamon NE
48 = Permit number G-1383-4 1/2" NE
49 = Permit number G-1321-2 1/2" NE
50 = Permit number G-2909-4 1/2", HPL SE
51 = Permit number G-2457-3" SE
52 = Permit number G-3179-2 1/2", EXXON SE
53 = Permit number G-3181-2", EXXON SE
54 = Permit number G-3781-2", EXXON SE
55 = Permit number G-3780-2 1/2", Dow SE
56 = Permit number G-2283-2-2", EXXON SE
57 = Permit number G-3203-2 1/2", EXXON SE
58 = Permit number G-2839-2 1/2", G-2840-2 1/2", EXXON SE
59 = Permit number G-3414-6", Energy SE
60 = Permit number G-3152-2 1/2", EXXON SE
61 = Permit number G-80-084-4", 10", HPL SE
62 = Permit number G-2563-6 5/8", McMoRan NE
63 = Permit number G-3596-3 1/2", McMoRan NE
64 = Permit number G-2347-2-3", McMoRan NE
65 = Permit number G-2880-8", Southwestern Bell Telephone NE
66 = Permit number G-1116-2" NE
67 = Permit number G-3564-12", HPL NE
68 = Permit number G-896-6" NE, G-2440-6" NE
69 = Permit number G-3882-2 1/2", H. E. Hunt Estate NE
70 = Permit number G-1449-2 7/8"-2, Scurlock NE
71 = Permit number G-1562-12", Valero gathering NE
72 = Permit number G-3611-3 1/2", Tamarack Pet. NE
73 = Permit number G-3676-3 1/2", Tamarack Pet. NE
74 = Permit number G-1563-12" NE
75 = Permit number G-3342-2", Mobil NE
76 = Permit number G-1477-12 1/2", CSGP gathering NE
77 = Permit number G-1565-12", Valero gathering NE
78 = Permit number G-2164-4", Valero gathering NE

79 = Permit number G-79-166-8", Valero gathering NE
80 = Permit number G-1967-2 7/8", King NE
81 = Permit number G-4032-4", Davis NE
82 = Permit number G-1968-2 7/8", King NE
83 = Permit number G-1966-2 7/8", King NE
84 = Permit number G-3706-2 1/2", Getty NE
85 = Permit number G-3533-6 5/8", McMoRan SE
86 = Permit number G-4005-4 1/2", 2 3/8", Texaco SE
87 = Permit number G-2560-6", Reynolds SE
88 = Permit number G-3946-8", UG SE
89 = Permit number G-1630-8", UG SE
90 = Permit number G-1836-2-4", Shell G-4109-2-6", Gulf SE
91 = Permit number G-3875-8" NE

3. Nodes (N) of offshore pipelines - oil and gas
Labeled clockwise from north by permit number
Node 1 includes, in order NE
O-3861-2 1/2"
O-3528-2-2 1/2"
O-3790-2-2 1/2"
O-3530-2-2 1/2"
O-3527-2-2 1/2"
O-3526-2-2 1/2"
O-3524-3-2 1/2"
O-3525-2-2 1/2"
O-4063-2-2 1/2", C. B. Marino
G-2188-2"
G-2189-2"
G-2190-2 1/2"
O-1442-2 1/2"
O-4062-2 1/2"
O-4061-2-2 1/2", C. B. Marino
O-1437-3-2 1/2"
Node 2 includes, in order NE
O-1495-2-2 1/2"
O-1461-2-2 1/2"
O/G-3449-2-2 1/2"
O-2946-4 1/2"
G-2168-2 1/2"
G-1743-2 1/2"
G-3967-2 1/2"
G-3385-2 1/2"
G-3391-2-2 1/2"
O-3391-2-2 1/2"

4. Refineries
a) sites
1 = Champlin Petroleum Co. Refinery NE
2 = Union Oil Refinery NE
3 = Tipperary Refinery NE
4 = Sun Refinery NW
5 = Southwestern Oil & Refining Corp. NE
6 = Quintana-Howell Joint Venture Refinery NE
7 = Coastal States Crude Gathering Co.
8 = Suntide Refining Co. NW
9 = Saber Refinery NW
b) area
No data

5. Gas processing plants
a) sites
1 = Tenneco Oil Dean Gas Plant SW
2 = United Gas Aqua Dulce Gas Plant SW
3 = Cities Service Robstown Gas Plant SW
4 = HNG Robstown Gas Plant (& pumping station) SW
5 = Champlin Petroleum Gulf Plains Gas Plant SW
6 = Texaco Odem Gas Plant
7 = Sun Luby Gas Plant SW

8 = AMOCO Luby Gas Plant SW
9 = ARCO Taft Gas Plant NE
10 = HNG Gregory Gas Plant NE
11 = Cities Service Corpus Bay Gas Plant NE
12 = Valero gathering Corpus Christi Gas Plant NE
13 = Sun Oil Redfish Bay Gas Plant NE
14 = EXXON Flour Bluff Gas Plant SE
15 = Celanese Bishop Plant SW
16 = Valero Snoup Plant NE
17 = Mitchell Energy Corpus Christi SE

b) areas

G1 = Natural Gas P/L Company NE
G2 = El Paso Natural Gas Co. NE

6. Compressor, pumping, and metering stations

a) sites

1 = CSGP Alfred Station NW
2 = Richard King Station NW
3 = Reynet Compressor Station NW
4 = Banquete Station NW
5 = Aqua Dulce Station SW
6 = McCoy Station SW
7 = Unnamed Station SW
8 = Champlin Wardner Compressor Station SW
9 = Sullivan Trunk Station SW
10 = NGPL line Station 34 NW
11 = Riverside Station NW
12 = Mobil Compressor Station No. 1 NW
13 = Rektorik Station NW
14 = Robstown Station NW
15 = Bryant Station SW
16 = FGT line Station No. 2 SW
17 = Minnie Bock Station SW
18 = HPL Metering Station SW
19 = Clara Driscoll Station SW
20 = Houser Station SW
21 = Arnold David Compressor Station SW
22 = Viola Station NW
23 = Hunter Station NW
24 = Texas Saxet Station NW
25 = Knight Station SW
26 = Geistman Station SW
27 = Midway Station (1) NE
28 = Midway Station (2) NE
29 = Estes Cove Station NE
30 = Meter Station, Nueces Co. NE
31 = Summitt Gas Meter NW
32 = Wade City Oil Field Station NW
33 = Stratton Station NW
34 = EXXON P/L Co. Station NE
35 = Unnamed Station NW
36 = Unnamed Station SW
37 = Unnamed Station NW
38 = Unnamed Station NW
39 = Unnamed Station NW
40 = Unnamed Station NW
41 = Unnamed Station SW
42 = Unnamed Station SW
43 = Unnamed Station SW
44 = Unnamed Station NW
45 = Unnamed Station NW
46 = Unnamed Station NE
47 = Unnamed Station NE
48 = Unnamed Station SW
49 = Unnamed Station NW
50 = Unnamed Station SW

b) area

No data

7. Storage facilities

a) site

Present

- b) area
    - S1 = C.P.&L. Storage Facility SE

8. Platforms, offshore
    - Present

9. Platform fabrication yards
    - a) site
        - 1 = Baker Marine Corp., Ingleside NE
    - b) area
        - P1 = Brown and Root, Ingleside/Aransas Pass NE

10. Dock facilities
    - a) sites
        - 1 = Sun Terminal Docks NE
        - 2 = Unnamed Oil Dock NE
        - 3 = Oil dock 8&9 NE
        - 4 = Oil dock 14 NE
        - 5 = Oil dock No. 6 NE
        - 6 = Coastal States Oil docks NE
        - 7 = Champlin Oil NE
        - 8 = South west Oil Docks NE
        - 9 = Oil dock No. 5
        - 10 = Oil dock 12
    - b) area
        - No data

11. Terminals
    - a) sites
        - 1 = Sun Ingleson Terminal NE
        - 2 = Sun Terminal NE
        - 3 = Sun Terminal NE
        - 4 = Sigmor Terminal NE
        - 5 = Permian Terminal NE
        - 6 = Mobil Terminal NE
        - 7 = Coastal States Terminal NE
        - 8 = Conoco Terminal NE
        - 9 = FINA NE
        - 10 = EXXON NE
        - 11 = Baker Marine Corp.
    - b) areas
        - T1 = Harbor Island Terminal
        - T2 = Corpus Christi Terminal
        - T3 = San Patricio Terminal

12. Helicopter service
    - a) sites
        - 1 = Corpus Christi NE
        - 2 = Corpus Christi - Memorial Medical Center NE
        - 3 = Port Aransas - Mustang Island SE
        - 4 = Ingleside Northshore Dock NE
    - b) area
        - No data

B. Mineral Resources

1. Oil fields
    - Present
2. Gas fields
    - Present
3. Sand, gravel, clay, dirt pits
    - Present
4. Sulphur wells, mines
    - No data
5. Geopressured - geothermal area
    - 1 = Corpus Christi Fairway - Frio Formation NE
6. Groundwater source
    - Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

EL CAMPO QUADRANGLE (Seguin SE)
including parts of Colorado, DeWitt,
Fort Bend, Jackson, Lavaca, Matagorda,
Victoria, and Wharton counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
    - a) Onshore
        - 1 = Tesoro 4" SW-SE
        - 2 = Texas P/L 4" SE
        - 3 = Texas P/L 6" SE
        - 4 = Texas P/L 6" SE
        - 5 = Scurlock 3" SE
        - 6 = Harrison 2 1/2" SE
        - 7 = Mobil 8" SW
        - 8 = Mobil 6" SW
        - 9 = Scurlock 4" SE
        - 10 = EXXON 4" SE
        - 11 = Texas P/L 8" SE
        - 12 = Mobil 8", 10" NE-SE-SW
        - 13 = Scurlock 3" SE
        - 14 = EXXON 16" SE
    - b) Offshore, number boxed
        - Not applicable
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
    - a) Onshore
        - 1 = TGP 4" NE
        - 2 = Mobil 14" SE-NE
        - 3 = TET 16" NE
        - 4 = Seagull NE
        - 5 = Ka-Hugh NE
        - 6 = TGP 4" NE
        - 7 = NGPL 12" NE
        - 8 = TGP 16" NE
        - 9 = UG 4" SE
        - 10 = HPL 12"
        - 11 = Enserch 16" SE-NE
        - 12 = HPL 12" NE
        - 13 = Enserch 4" SE
        - 14 = Delhi 4" NE
        - 15 = NGPL 2-30" NE
        - 16 = Transco 30" NE
        - 17 = Valley 3" NE
        - 18 = meter station 2" NE
        - 19 = HPL 6" NE
        - 20 = HPL 4" NE
        - 21 = Enserch 4" NE
        - 22 = HPL 4" NE
        - 23 = HPL 12" NE
        - 24 = HPL 24" SW-SE-NE
        - 25 = NGPL 24" NE
        - 26 = UTT 18", 30", UG 30", Enserch 16" SE
        - 27 = UTT 18", 30" SE-NE
        - 28 = UG 30" SE-NE
        - 29 = UTT 6", 8" NE
        - 30 = Esperaza 3" NE-SE
        - 31 = Tejas 3" SE
        - 32 = UG 4" NE-SE
        - 33 = HPL 4" NE
        - 34 = Tejas 2" SE
        - 35 = Texaco SE
        - 36 = EXXON 10" SE
        - 37 = UTT 6", 8" SE
        - 38 = Dow 4" SE
        - 39 = Dow 14" SE
        - 40 = Dow 4" SE
        - 41 = HPL 16" SE
        - 42 = Delhi 4" SE
        - 43 = Texaco SE
        - 44 = FGT 4" SE
        - 45 = UTT 6" SE
        - 46 = UTT 10", 16" SE
        - 47 = EXXON 2 3/8" SE
        - 48 = Transco 4", 30" NE-SE
        - 49 = Intrastate Gathering 2" SE

50 = Intrastate Gathering 3" SE
51 = Transco 14" SE
52 = Intrastate Gathering 2" SE
53 = Intrastate Gathering 2" SE
54 = Intrastate Gathering 4" SE
55 = Intrastate Gathering 3" SE-NE
56 = Intrastate Gathering 6" SE
57 = FGT 3" SE-NE
58 = Dow 12" SE-NE
59 = Dow 4" SE
60 = Delhi 4" SE
61 = Delhi 6" NE
62 = TGP 6" SE
63 = TGP 8" NE-SE
64 = TGP 4" SE
65 = Delhi 6" NE
66 = Delhi gathering NE
67 = Intrastate Gathering 4" SE
68 = TGP 6" SE
69 = Delhi SE
70 = Jones Creek 2" SE
71 = Enserch 4" SE
72 = Paloma 2" SE
73 = Holly SE
74 = Enserch 3" SE
75 = Enserch 2" SE
76 = NGPL gathering SE
77 = Delhi gathering SE
78 = HPL 4" SE
79 = HPL 2" SE
80 = NGPL 26", 30" SW-SE-NE
81 = Transco 26" SW-SE-NE
82 = Gulf Tide 3" SE
83 = Gulf Tide 3" SE
84 = Delhi 4" SE
85 = Delhi 6" SE
86 = TGP 24", 2-30" SW-SE-NE
87 = Transco 24" SE-NE
88 = Delhi 4" SE
89 = Delhi 6" SE
90 = Delhi 4 1/2" SE
91 = Delhi 6" SE-NE
92 = General Enterprises NE
93 = Tejas 3" SE-NE
94 = HDC SE-NE
95 = Delhi NE
96 = Tubb/Stephenson 2" SE-NE
97 = Delhi 8" SE
98 = Trunkline 24", 26" NE
99 = HPL 18" NE
100 = TET 24" SE-SW
101 = Enserch 6" SW
102 = HPL 4" SW
103 = Enserch 6" SE-SW
104 = Enserch 4" SE
105 = Enserch feeder 2" SE
106 = Enserch feeder 2" SE
107 = Delhi 4" SE
108 = HPL 18" SW-SE
109 = Delhi 4" SW
110 = TGP 10" SW
111 = Transco 30" SE
112 = Dow 4" SE
113 = HPL 4" SE
114 = Tejas 4" SE
115 = Tejas 2" SE
116 = FGT 20" SE
117 = EXXON 30", 36" SE
118 = Valero 12" SE
119 = UTT 6" SE
120 = multiple Marathon lines SE
121 = HPL 4" SE
122 = HPL 12" SW

b) Offshore, number circled
No data

3. Nodes (N) of offshore pipelines - oil and gas
Not applicable

4. Refineries
a) site
No data
b) area
No data

5. Gas processing plants
a) sites
1 = Marathon Markham Gas Plant SE

2 = Getty Bay City Plant SE

b) area
No data

6. Compressor, pumping, and metering stations
   a) sites
   1 = Ganado Station SW
   2 = HPL Meter Station SW
   3 = Hillji Station SE
   4 = Louise Station SE
   5 = HPL Meter Station SE
   6 = HPL Meter Station SE
   7 = Meter Station NE
   8 = EXXON Magnet Withers Station SE
   9 = Unnamed Station SE
   10 = Unnamed Station SE
   11 = Unnamed Station SE
   12 = Unnamed Station SE
   13 = Unnamed Station NE
   14 = Unnamed Station NE
   15 = Unnamed Station NE
   b) area
   No data
7. Storage facilities
   a) site
   Present
   b) area
   No data
8. Platforms, offshore
   Not applicable
9. Platform fabrication yards
   a) site
   Not applicable
   b) area
   Not applicable
10. Dock facilities
    a) site
    No data
    b) area
    No data
11. Terminals
    a) site
    No data
    b) area
    No data
12. Helicopter service
    a) site
    1 = Freeport, Police No. 1 SE
    b) area
    No data

B. Mineral Resources

1. Oil fields
   Present
2. Gas fields
   Present
3. Sand, gravel, clay, dirt pits
   Present
4. Sulphur wells, mines
   No data
5. Geopressured - geothermal area
   No data
6. Groundwater source
   Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

FREEPORT QUADRANGLE (Bay City NW)
including parts of Brazoria and
Matagorda counties

A. Oil and Gas Infrastructure
   1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
      a) Onshore
         1 = Seaway 30" NE
         2 = Seaway 30" NE
         3 = Seaway 30" NE
         4 = Seaway 30" NE
         5 = Scurlock 2 1/2" NW
         6 = Scurlock 2 1/2" SW
         7 = Texas P/L 6" NW
         8 = Texas P/L 8" NW
      b) Offshore, number boxed
         1 = Permit number 0-2597-6", No name SW
         2 = Permit number O/G-3483-4", No name NE
         3 = Permit number 0-2565-8 5/8", Mobil NE
         4 = Permit number 0-2605-6 5/8", Mobil NE
         5 = Permit number O/G-3000-20"-1, Blue Dolphine NE
   2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
      a) Onshore
         1 = Dow 12" NW
         2 = Dow 16" NW
         3 = HPL 8" NE
         4 = Blue Dolphin 20" NE
         5 = HPL 3" NE
         6 = Dow 6" NE
         7 = Dow 24" NE
         8 = HPL 12" NE-NW
         9 = HPL 8" NW
         10 = HPL 10" NE
         11 = HPL 6" NE
         12 = HPL 8" NE
         13 = Phillips 10" NW
         14 = Dow 14" NW-NE
         15 = Dow 8", 16" NW-NE
         16 = Dow 16" NW-NE
         17 = Dow 8" NE
         18 = TGP 12" NW
         19 = OTT 3-20"; Dow 16"; HPL 6"
         20 = OTT 20" NE
         21 = J. S. Michael 4" NW
         22 = Townsend 4" NW
         23 = HPL 12" NW
         24 = HNG 12" NW
         25 = HPL 8" SW
         26 = Valero 16" NW
         27 = HPL SW
         28 = Transco 30" NW-SW
         29 = HNG 8" NW
         30 = Valero 8" SW
         31 = TET 30" NW
         32 = FGT 8" NW-SW
         33 = HNG 4" NW
         34 = HPL 4" NW
         35 = Dow 16" NW
         36 = TGP 16" NW
         37 = Dow 12" NW
         38 = HNG 3" NW
         39 = Valero 12" NW
         40 = TGP 12" NW
         41 = NGPL 12" NW
         42 = Valero 20" NW
         43 = Dow 12" NW
         44 = Dow 4" NW
         45 = Valero 6", 8" NW
         46 = FGT 3" NW
         47 = HNG 8" NW
         48 = Dow 6" NW
         49 = Dow 8" NE

50 = UTT 15", 18", 20" NE
51 = Dow 16" NE
52 = HPL 6" NE
53 = Dow 8" NW-NE
54 = Connection between Texcol & Dow lines NE
55 = Blue Dolphin 20" NE
56 = UTT 20" NE
57 = Valero 14" NW
58 = TGP 10" NW
59 = TGP 8" NW
60 = TGP 5" NW

b) Offshore, number circled
1 = Permit number G-3673-12", Valero gathering SW
2 = Permit number G-80-091-6", Valero gathering SW
3 = Permit number G-2587-6 5/8"-2, ties to HPL SW
4 = Permit number G-2588-6 5/8"-2, ties to HPL SW
5 = Permit number G-2114-30", ties to HNG SW
6 = Permit number G-3275-8 5/8", Texcol SW
7 = Permit number G-3305-4 1/2", Texcol SW
8 = Permit number G-4170-6", Dow SE-NE
9 = Permit number G-3249-3", 8", HPL NE
10 = Permit number G-79-243-2 7/8", HPL feeder, NE
11 = Permit number G-79-243-2 7/8", HPL feeder, NE
12 = Permit number G-243-2 7/8", HPL feeder, NE
13 = Permit number G-79-243-2 7/8", HPL feeder, NE
14 = Permit number G-79-244, 3-4 1/2", 3 1/2", HPL feeder, NE
15 = Permit number G-3209-8", HPL NE
16 = Permit number G-2857-8 5/8", Texcol NW-SW
17 = Permit number No number, Valero 16" SW
18 = Permit number No number, Valero 10" SW
19 = Permit number No number, Valero 8" SW
20 = Permit number No number, Valero 8" SW

3. Nodes (N) of offshore pipelines - oil and gas
None

4. Refineries
a) site
No data
b) area
No data

5. Gas processing plants
a) sites
1 = Lovaca Bay City Gas Plant NW
2 = Shell Gas Plant NE
b) area
No data

6. Compressor, pumping, and metering stations
a) sites
1 = Hannan Station NW
2 = Markham Station NE
3 = Texas Gulf Sulphur SW
b) area
No data

7. Storage facilities
a) site
Present
b) area
No data

8. Platforms, offshore
Present

9. Platform fabrication yards
a) site
1 = Fish Engineering and Construction, Inc. NE
b) area
No data

10. Dock facilities
a) site
1 = Phillips Docks NE
b) area
No data

11. Terminals
    a) site
        T1 = Shell Terminal SW
    b) area
        No data
12. Helicopter service
    a) sites
        1 = Freeport, National Bank NE
        2 = Freeport, Dresser Magcobur NE
    b) area
        No data

B. Mineral Resources
   1. Oil fields
        Present
   2. Gas fields
        Present
   3. Sand, gravel, clay, dirt pits
        Present
   4. Sulphur wells, mines
        1 = Clemens No. 1 NW
        2 = Clemens No. 2 NW
        3 = Bryan Mound
   5. Geopressured - geothermal areas
        1 = Matagorda Fairway 1, Frio Formation
        2 = Matagorda Fairway 2, Frio Formation
        3 = Brazoria Fairway, Frio Formation
   6. Groundwater source
        Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

GALVESTON QUADRANGLE (Houston SE)
including parts of Galveston County

A. Oil and Gas Infrastructure
   1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
      a) Onshore
         1 = EXXON 4" NW
         2 = AMOCO NW
         3 = Houston O/M 4" NW
         4 = AMOCO 26" NW
         5 = AMOCO 2-8", 12" NW
         6 = AMOCO 12" NW
         7 = ARCO 36" NW
         8 = Texas P/L 8" NW
         9 = EXXON 2-8" NW
         10 = ARCO 2-42" NW
      b) Offshore, number boxed
         1 = Permit number O/G-1210-2 1/2", John W. Mecom NW
         2 = Permit number O/G/W-3804-14", AMOCO NW
         3 = Permit number O/G-3272-6 5/8", Houston O/M NW
         4 = Permit number O/G-3273-6 5/8", Houston O/M NW
         5 = Permit number O/G-3278-6 5/8", Texas Electric NW
         6 = Permit number O/G-3274-6 5/8", Houston O/M NW
         7 = Permit number O/G-3391-3 1/2", Houston O/M NW
         8 = Permit number O/G-7463-6 5/8", Houston O/M NW
         9 = Permit number O-3095-2 7/8" NW
         10 = Permit number No number, Mitchell 3" NW
         11 = Permit number O/G-4013-4 1/2" NW
         12 = Permit number O/G-3759-2-4" NW
         13 = Permit number O/G-3287-12", Houston O/M NW
         14 = Permit number O-79-313-10" NW
         15 = Permit number O-2612-12" NW
         16 = Permit number O-3089-6 5/8", Houston O/M SW
         17 = Permit number O-2465-4" NW
         18 = Permit number O-2461-2 3/8" NW
         19 = Permit number O/G-3413-8", 2 7/8", Houston O/M NW
         20 = Permit number O/G/W-3859-3-3", 2", Mitchell NW
   2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
      a) Onshore
         1 = EXXON 10" NW
         2 = UTT 24" NW
         3 = FGT 22" NW
         4 = EXXON 3" NW
         5 = HPL 24" NW
         6 = UTP 6" NE
         7 = Tejas 6" NW
         8 = AMOCO 18" NW
         9 = Black Marlin 16" NW-NE

10 = HPL 14" NW
11 = Seagull NW
12 = HPL 18" NW
13 = HPL 12" NW
14 = Valero 10" NW
15 = AMOCO 16" NW
16 = Valero 16" NW
17 = HPL 6" SW
18 = Black Marlin 16" NW offshore
19 = AMOCO 12" NW
20 = HPL 8" NW-SW
21 = Seagull 6" SW
22 = Valero gathering NW
23 = AMOCO 20" NW
24 = HPL 16" NW
25 = Big Three NW
26 = Big Three NW
27 = EXXON 24" NW
28 = FGT 22" NW

b) Offshore, number circled
1 = Permit number G-2040-4", Clinton NW
2 = Permit number G-1220-2 1/2", Pan American NW
3 = Permit number HPL 8" NW
4 = Permit number G/ME-3804 14" Seagull SW
5 = Permit number G-79-200-10", Shell NW
6 = Permit number G-79-317-10 3/4", No data NW
7 = Permit number G-79-175-16", Houston O/M NW
8 = Permit number G-3667-8 5/8", Houston O/M NE-NW
9 = Permit number G-3252-6 5/8", Tejas SW
10 = Permit number G-3715-3 1/2", Mitchell NW
11 = Permit number G-2470-8", NGPL NW
12 = Permit number G-80-023-10 3/4", No name NW
13 = Permit number G-2373-4", Houston O/M NW
14 = Permit number No number, Black Marlin NW
15 = Permit number G-80-125-18", AMOCO NW
16 = Permit number No number 24", FGT NW
17 = Permit number G-2612-12", Seagull NW
18 = Permit number No number 16", Black Marlin NW-NE
19 = Permit number No number, HPL 18" NW

3. Nodes (N) of offshore pipelines - oil and gas
Labeled clockwise from north by permit number
N1 includes, in order NW
Permit number O/G-3328-3 1/2"
Permit number O/G-3464-3 1/2"
Permit number O/G-3281-3 1/2", Houston O/M
Permit number O/G-3398-3 1/2"
Permit number O/G-3468-3"
Permit number O/G-3330-2 1/2"
N2 includes, in order NW
Permit number O-3506-6"
Permit number O/G-3275-4 1/2"
Permit number O/G-3395-4 1/2"
Permit number O/G-3467-4 1/2"
Permit number O/G-3515-4 1/2"
Permit number O/G-3948
Permit number O/G-3762-4"
Permit number O-3763-4"
Permit number O-3693-3"
Permit number O/G-3468-3 1/2"
Permit number O/G-3393-3 1/2"

- Permit number O/G-3421-3 1/2"
- Permit number O/G-3473-6 5/8"
- Permit number G-3397-3 1/2"
- Permit number O/G-3392-3 1/2", Houston O/M
- Permit number O/G-3394-4 1/2" Houston O/M
- Permit number O/G-3396-3 1/2"

N3 includes, in order NW
- Permit number O-3703-4 1/2"
- Permit number O/G-4012-6", 10"
- Permit number O/G-4011-3 1/2"
- Permit number O/G-3989-3 1/2"
- Permit number O/G-4024-3 1/2"
- Permit number O/G-4015-3 3 1/2"
- Permit number O/G-4014-2-4"
- Permit number O/G-3880-2 1/2"
- Permit number O/G-3329-6 5/8"
- Permit number O/G-3402-4"
- Permit number O/G-2371-6"
- Permit number O/G-3455-2 1/2"
- Permit number O/G-3599-2 1/2"
- Permit number O/G-3516-2 1/2"
- Permit number O/G-2370-3-2"
- Permit number O/G-3058-4 1/2"
- Permit number O/G-2559-3 1/2"
- Permit number O/G-2369-2"
- Permit number G-2141-4"
- Permit number O/G-3691-4 1/2"
- Permit number O/G-3648-4 1/2"

N4 includes, in order NW
- Permit number O/G-3490-4 1/2", Houston O/M
- Permit number O-3716-4 1/2", Houston O/M
- Permit number O/G-3692-4 1/2", Houston O/M
- Permit number O/G-3681-4 1/2", Houston O/M
- Permit number O/G-3678-4 1/2", Houston O/M
- Permit number O/G-3816-4 1/2", Houston O/M
- Permit number O/G-3682-6 5/8", Houston O/M

N5 includes, in order NW
- Permit number O/G-3585-4 1/2"
- Permit number O/G-3950-2 7/8"
- Permit number O-3559-2-4 1/2"
- Permit number O-3559-2-3 1/2"
- Permit number O/G-3467-8-3 1/2"
- Permit number G-3403-16"
- Permit number O/G-3412-4 1/2"
- Permit number O/G-3408-4 1/2"
- Permit number O/G-3411-4 1/2"
- Permit number O/G-3409-4 1/2"
- Permit number O/G-3410-4 1/2"
- Permit number O/G-3714-2-4"
- Permit number O/G-3406-3 1/2"
- Permit number O/G-63413-8", 2 7/8"

4. Refineries
   a) site
      No data
   b) area
      R1 = Texas City Refinery Complex NW including Union Carbide, Mobil Oil, AMOCO, Texas

BEST COPY AVAILABLE

City Refining,
Marathon Oil Co.

5. Gas processing plants
    - a) sites
        - 1 = AMOCO S. Gillock Gas Plant NW
        - 2 = N. Texas L. P. G. Galveston Gas Plant NW
    - b) area
        - No data
6. Compressor, pumping and metering stations
    - a) sites
        - 1 = Unnamed Station NW
        - 2 = ARCO Pump Station NW
        - 3 = Meter Station, Texas City NW
        - 4 = Sun Station NW
        - 5 = Unnamed facility SW
    - b) area
        - No data
7. Storage facilities
    - a) site
        - Present
    - b) area
        - No data
8. Platforms, offshore
    - Present
9. Platform fabrication yards
    - a) site
        - 1 = Todd Shipyards
    - b) area
        - No data
10. Dock facilities
    - a) site
        - No data
    - b) area
        - No data
11. Terminals
    - a) sites
        - 1 = Mobil Terminal NW
        - 2 = Union Carbide, CSGP States NW
        - 3 = New Port Marine Terminal NW
        - 4 = Western Geophysical Corp. NW
        - 5 = Tenneco NW
        - 6 = Pennzoil NW
        - 7 = Shell NW
        - 8 = Dresser Ind. NW
        - 9 = Galveston Yacht Basin NW
        - 10 = Monsanto Dock 1 NW
        - 11 = Unnamed Oil Dock Facility NW
        - 12 = American Oil Tanker Docks NW
        - 13 = AMOCO Chemical Dock 50 NW
        - 14 = Texas City Liquid Cargo Dock NW
    - b) area
        - No data
12. Helicopter service
    - a) sites
        - 1 = Galveston, UT Medical Branch Hospital NW
        - 2 = Galveston, Pelican Island, Shell NW
        - 3 = Galveston, Dresser Industries, Magcobar NW
        - 4 = Galveston, University of Texas, Medical Branch NW
        - 5 = Lamarque/Texas City, hospital NW
        - 6 = Port Bolivar, Houston Oil and Minerals No. 1 NW
        - 7 = Port Bolivar, Houston Oil and Minerals No. 2 NW
        - 8 = Galveston, Baroid NW
    - b) area
        - No data

B. Mineral Resources

1. Oil fields
    - Present
2. Gas fields
    - Present
3. Sand, gravel, clay, dirt pits
    - No data
4. Sulphur wells, mines
    - No data
5. Geopressured - geothermal areas
    - 1 = Brazoria Fairway, Frio Formation
6. Groundwater source
    - Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

GOLIAD QUADRANGLE (Beeville NW)
including Bee, Karnes, Dewitt, Refugio,
Goliad and Victoria counties

A. Oil and Gas Infrastructure
  1. Oil pipelines; single dashed line, one pipeline; double-width dashed line, two or more pipelines
    a) Onshore
      1 = Permian 3" NE
      2 = Permian 6" SE
      3 = Sun 3", 4" SE
      4 = Scurlock 3" SW
      5 = Scurlock 4" SW
      6 = EXXON 4" SE
      7 = Sun 2" SE
      8 = Sun gathering 4" SE
      9 = Scurlock gathering 3" SW
      10 = Scurlock gathering 4" SW
      11 = Sun gathering 3" SE
    b) Offshore, number boxed
      Not applicable
  2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
    a) Onshore
      1 = Enserch 8" NE
      2 = Enserch 12" NE
      3 = Valero 6" NE
      4 = HPL 12" NE
      5 = HPL 12" NE
      6 = Enserch 6" NE
      7 = Intrastate Gathering 6" NE
      8 = Valero 4", 3 1/2" NE
      9 = TET 16" NE
      10 = HPL 24" SE
      11 = TPG 6" SE
      12 = Trunkline 20" SE-NE
      13 = HPL 18" SE-NE
      14 = HPL 4" SE
      15 = Delhi 4" SE
      16 = Outline 2" SE
      17 = Intramerica 2" SE
      18 = Eagle 3" SE
      19 = HPL 4" SW
      20 = Coronado 2" SW
      21 = Delhi 8" SE-SW
      22 = Vaquero 2" SE
      23 = Transco 24" SE-NE
      24 = Delhi 4" SE
      25 = Enserch 6 5/8" NE-SE
      26 = Delhi 6" NE
      27 = Tejas 4" NE
      28 = Delhi 4" SE
      29 = Regis 4" SE
      30 = Seagull 2 7/8" SE
      31 = Delhi 3" SE
      32 = Seagull 3 1/2" NE
      33 = Transco 3 1/2" NE
      34 = HPL 6" NE
      35 = Transco 3", 4" NE
      36 = Delhi 4" NE
      37 = FGT 6" NE
      38 = Cologne Production 4" SE
      39 = Enserch 14" NE
      40 = Transco 6" NE
      41 = TGP 6" NE
      42 = Valero 4" NE
      43 = HNG 4" NE
      44 = CB NE
      45 = Delhi 4" NE
      46 = HPL 4" SE
      47 = CSGP 2" NE-SE
      48 = Transco 26" SE
      49 = TGP 24", 2-30" SE
      50 = Tenngas 12" SE
      51 = Cologne Production 4" SE
      52 = NGPL 26", 30" SE

53 = Enserch 14" SE
54 = UG 16" SE
55 = Union Pacific 6" SE
56 = HPL 16" SE
57 = UTT 30", UG 30" SE
58 = Enserch 8" SE
59 = Seadrift 8" SE
60 = TGP 4" SE
61 = HPL 4" SE
62 = UG SE
63 = UG SE
64 = Delhi SW
65 = Dow gathering SW
66 = Valero 6" SW
67 = Delhi gathering 4" SE
68 = Intrastate Gathering 6" NE
69 = Delhi 14" NE
70 = HPL 4" gathering SE
71 = TGP 4" SE
72 = CSGP 2" NE
73 = Valero 2" NE
74 = Delhi 2", SE
75 = HPL 4" SE
76 = CSGP 8" NE
77 = Delhi 8" NE
78 = Delhi 4 1/2" SE
79 = Cologne Production 4" SE
80 = Outline 2" SE
81 = HPL 4" NE
82 = Delhi 6" NE
83 = HPL 4" NE
84 = HPL 4" NE
85 = Outline 2" SE
86 = Regis 4" SE
87 = Dow gathering SW
88 = Coronado 2" SW
89 = Delhi gathering SE
90 = TGP 4" SE

b) Offshore, number circled
Not applicable

3. Nodes (N) of offshore pipelines - oil and gas
Not applicable

4. Refineries
a) site
No data
b) area
No data

5. Gas processing plants
a) sites
1 = Lone Star Meyersville HRU, Gas plant NE
2 = Sun Victoria Gas Plant NE
b) area
No data

6. Compressor, pumping, and metering stations
a) sites
1 = Dow Ajax Compressor Station SE
2 = Station 24 NE
3 = Victoria Station NE
4 = Meter Station SE
5 = McFaddin Compressor Station SE
b) area
No data

7. Storage facilities
a) site
Present
b) area
No data

8. Platforms, offshore
Not applicable

9. Platform fabrication yards
a) site
Not applicable
b) area
Not applicable

10. Dock facilities
a) site
Not applicable
b) area
Not applicable

11. Terminals
a) site
No data
b) area
No data

12. Helicopter service
a) site
1 = Victoria, Victoria Bank & Trust Motor Garage NE
b) area
No data

B. Mineral Resources
   1. Oil fields
      Present
   2. Gas fields
      Present
   3. Sand, gravel, clay, dirt pits
      Present
   4. Sulphur wells, mines
      No data
   5. Geopressured - geothermal area
      No data
   6. Groundwater source
      Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

HARLINGEN QUADRANGLE (Brownsville S/2, N/2) including parts of Cameron, Hidalgo, and Willacy counties

A. Oil and Gas Infrastructure
   1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
      a) Onshore
         1 = Big Heart 8" NW-NE-SE
      b) Offshore, number boxed
         1 = Permit number 0-2646-4", EXXON SE
         2 = Permit number O/G-3115-8 5/8", Mobil NE
         3 = Permit number 0-2933-4 1/2", Mobil NE
         4 = Permit number 0-2933-4 1/2", Mobil NE
         5 = Permit number 0-2933-4 1/2"-2, Mobil NE
   2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
      a) Onshore
         1 = CSGP (RGV) 6" SW-SE
         2 = Seadrift 16" SW-SE
         3 = CSGP (RGV) 8" SW
         4 = CSGP (RGV) 10" SE
         5 = Seagull NE
         6 = EXXON 4" NE
         7 = Padre Resources 3" NE
         8 = CSGP (RGV) 6" SE
         9 = CSGP (RGV) 4" SW-SE-NE
         10 = Tejas SE
         11 = Intrastate Gathering 8" SW
         12 = CSGP (RGV) 12" SW
         13 = CSGP (RGV) 10" NW-SW
         14 = CSGP (RGV) 4" NW-SW
         15 = Celanese 4" SW
         16 = TET 6" SW
         17 = Delhi gathering 2", 3", 4", 6", 8", NW-SW
         18 = CSGP (RGV) 2" NW
         19 = Transco 10" NW-SW
         20 = NGPL 12" NW
         21 = NGPL 4" NW
         22 = Tejas NW-NE
         23 = Coronado 2" NW
         24 = Unnamed gathering 4"-8" NW
         25 = TGP 8" NW
         26 = Tejas NW
         27 = gathering for Seadrift 16" SW
         28 = gathering for Seadrift 16" SW
         29 = CSGP (RGV) 8" NW
         30 = CSGP (RGV) 6" SW
         31 = Seadrift 2" SW
         32 = CSGP (RGV) 4" SW
         33 = CSGP gathering 3" SW
         34 = CSGP gathering 2" SW
         35 = Coronado 2" NE
         36 = Seadrift 4" SW
         37 = CSGP (RGV) 4" SW
         38 = Celanese 4" NW
         39 = TGP 4" NW
         40 = CSGP (RGV) 6" SW
         41 = Superior 2", 4" NW
         42 = Intrastate Gathering 6" SE
         43 = TGP 4" NW
         44 = TGP 4" NW
         45 = CSGP (RGV) 8" SE
         46 = CSGP feeder SE
         47 = Intrastate Gathering 6" SE
         48 = CSGP (RGV) gathering 8" SE
         49 = CSGP (RGV) SE

50 = CSGP (RGV) 6" SE

b) Offshore, number circled
- 1 = Permit number G-2401-6 5/8", UG SE
- 2 = Permit number G-2405-2 1/2", Gulf
- 3 = Permit number G-989-4" NE
- 4 = Permit number NE/G 3629-6 5/8", Houston O/M NE

3. Nodes (N) of offshore pipelines - oil and gas
   No data

4. Refineries
   - a) site
     No data
   - b) area
     No data

5. Gas processing plants
   - a) sites
     - 1 = Superior Chase Gas Plant NW
     - 2 = AMOCO Willamar Gas Plant NW
   - b) area
     No data

6. Compressor, pumping, and metering stations
   - a) sites
     - 1 = Russelltown Junction SW
     - 2 = Port Isabel Station SE
     - 3 = EXXON East Three Islands Separating Station NE
     - 4 = Unnamed Station NW
     - 5 = Unnamed Station NW
     - 6 = Unnamed Station NW
     - 7 = Unnamed Station NW
     - 8 = Unnamed Station NW
   - b) area
     No data

7. Storage facilities
   - a) site
     Present
   - b) area
     No data

8. Platforms, offshore
   No data

9. Platform fabrication yards
   - a) site
     No data
   - b) area
     No data

10. Dock facilities
    - a) site
      No data
    - b) area
      No data

11. Terminals
    - a) site
      No data
    - b) area
      No data

12. Helicopter service
    - a) site
      - 1 = South Padre Island - Southeastern Helicopters SE
    - b) area
      No data

B. Mineral Resources

1. Oil fields
   Present
2. Gas fields
   Present
3. Sand, gravel, clay, dirt pits
   Present
4. Sulphur wells and mines
   No data
5. Geopressured - geothermal area
   - 1 = Hidalgo fairway--Frio formation
6. Groundwater source
   Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

HOUSTON QUADRANGLE (Houston NW), including parts of Brazoria, Fort Bend, Galveston and Harris counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
   - a) Onshore
     - 1 = Seaway 30" SW
     - 2 = Gulf 6" SW
     - 3 = Shell-Rancho 24" SW-SE
     - 4 = EXXON 6" SW
     - 5 = Phillips 12" SW
     - 6 = Gulf 4" SE
     - 7 = Scurlock 4" SW-SE
     - 8 = Texas P/L 16" SE
     - 9 = Texas P/L 6" SE
     - 10 = Crown Central 6" SE
     - 11 = EXXON 8" SE
     - 12 = EXXON 8", 10" SW
     - 13 = Tex.-N. Mex 12" NE
     - 14 = Shell 6", 8", 10" SW-SE
     - 15 = EXXON 4", 8" NE-NW
     - 16 = EXXON 20" NE
     - 17 = AMOCO 2-10" NE
     - 18 = Texas P/L 8", 16" NE
     - 19 = Explorer 28" NE
     - 20 = Texas P/L 8", 12", 16" NE
     - 21 = ARCO 20" NE
     - 22 = AMOCO 12" NE
     - 23 = ARCO 2-12" NE
     - 24 = Texas P/L 20" NE
     - 25 = ARCO 8" NE
     - 26 = Cities Service 12" NE
     - 27 = Shell 10" NE
     - 28 = Oil Tanking 24" NE
     - 29 = Explorer 28" NE
     - 30 = Explorer 12" NE
     - 31 = Shell 24" NE-SE
     - 32 = ARCO 36" NE-SE
     - 33 = EXXON 8" SE
     - 34 = AMOCO 26" SE
     - 35 = EXXON 2", 4-8" SE
     - 36 = EXXON 16" SE
     - 37 = EXXON 8" SE
     - 38 = Texas P/L 8" SE
     - 39 = Gulf 6" SW
     - 40 = Explorer 28" NE
     - 41 = EXXON 8" SE
     - 42 = EXXON 16" SE
     - 43 = AMOCO 2-8", 12" SE
     - 44 = AMOCO 26" SE
     - 45 = Tex.-N. Mex. 12" NE-NW
     - 46 = Explorer 28", AMOCO 12", Cities Service 30", Shell 8", ARCO 36", and Texas P/L 8", 12" NE-SE
     - 47 = EXXON 2", 4-8" SE-NW
     - 48 = EXXON 2-8" SE
     - 49 = Gulf 8" SW-NE
     - 50 = Explorer 28", Texas P/L 8", Oil Tanking 24" NE
     - 51 = Oil Tanking 24" NE
     - 52 = EXXON 2-8", 10", 16" SW
     - 53 = Gulf 3-6" SW
     - 54 = Gulf 6" SW
     - 55 = Gulf 8" NE
     - 56 = Gulf 2-6" SW
   - b) Offshore, number boxed
     - No data
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
   - a) Onshore
     - 1 = UG 30" SW

2 = Mobil 14" SW
3 = UTT 8" SW
4 = Coronado 2" SW
5 = UTT 16" NE
6 = TET 16" SW-SE
7 = UTT 12" SW
8 = Enserch 18" SW
9 = Dow 30" SW
10 = HPL 30" SW-SE
11 = HPL 16" SW-SE
12 = AMOCO 20" SW-SE
13 = Trunkline 16" SW
14 = Enserch 16" SW-SE
15 = UTT 18" SW
16 = UTT 24" SW
17 = UTT 30" SE
18 = UTT 24" SE
19 = UTT 8" SW
20 = UTT 20" SW
21 = EXXON 36" SW
22 = HPL 16" SE
23 = EXXON 30" SE
24 = Tenneco 30" SE
25 = TET 2-30" SE
26 = TET 8" SE
27 = AMOCO 4" SE
28 = HPL 12" SW
29 = UTT 12" NW
30 = Enserch 7" gathering NE
31 = Mobil 14" NW
32 = EXXON 18" NE
33 = UTT 10", 12" NE
34 = UTT 12" NE
35 = Enserch 8" and Loop NE
36 = UTT 12" NW
37 = HPL 12" NE-SE
38 = HNG 6" NE
39 = Extex 10" NE
40 = Enserch 4" NE
41 = HPL 12" SE
42 = Enserch 10" NE
43 = Valero 3" NE
44 = Enserch 6" NE
45 = HNG 6" SW-SE
46 = HPL 6" NE
47 = UTT 3" NE
48 = Valero 12" NE
49 = HPL 12" NE-SE
50 = AMOCO 12" SE
51 = Valero 20" SE
52 = Phillips 6" SE
53 = HPL 18", 30" SE
54 = Enserch 4" SE
55 = HPL 6" SE
56 = UTT 20" NE
57 = EXXON 30" NE-SE
58 = AMOCO 8" SE
59 = UTT 24" SE
60 = UTT 20" SE
61 = HPL 24" SE
62 = EXXON 24" SE
63 = Tenneco feeder SE
64 = UTT 2-12" NE
65 = UTT 8" NE
66 = Tenneco 30" SE
67 = AMOCO 12" SE
68 = HPL 6" SE
69 = HPL gathering SE
70 = EXXON 8" SE
71 = EXXON gathering SE
72 = HPL gathering SE
73 = HPL 18" feeder SW
74 = HPL 18" feeder SW
75 = HPL 18" feeder SW
76 = HPL 4" feeder SE
77 = HPL 30" SE
78 = HPL 18" SE
79 = UTT 24" SE
80 = Enserch 12" SE
81 = HPL 18" feeder SE
82 = Enserch 4" NE
83 = HPL 12" NE
84 = UTT 18" SE-SW
85 = UTT 20" SE
86 = HPL 6" feeder SW
87 = UTT 16" NE
88 = Phillips 10" NE
89 = HPL 18"
90 = Enserch gathering 6" NE
91 = Pipeline corridor: HPL 18", Tenneco 20", HPL 18", Phillips 10", HPL 12" NE
92 = HPL 16" NE
93 = HPL 6" SE
94 = Tenneco 20" SE
95 = Enserch 14" SE

- 96 = Pipeline Corridor: HPL 12", UTT 16", HPL 16", Valero 12", Enserch 10", Enserch 8", HPL 30", AMOCO 12", Enserch 12", Valero 20" NE
- 97 = HPL 4" SE
- 98 = UTT 30" SW
- 99 = Enserch 12" SE
- 100 = Enserch 12" SE
- 101 = HPL 4" SE
- 102 = Tenneco 30", AMOCO 12" SE
- 103 = UTT 12", 18" NW
- 104 = EXXON 30", 14" NE-SE
- 105 = TET 30" SE
- 106 = UTT 24", TET, 16" NE
- 107 = HPL 16" NE

b) Offshore, number circled
   No data

3. Nodes (N) of offshore pipelines - oil and gas
   Not applicable
4. Refineries
   - a) sites (Highly generalized Refer to Dewitt Atlas for details. Houston Ship Channel is lined with refineries, terminals, docks, etc.)
     - 1 = Eddy Refining Co. SE
     - 2 = Crown Refinery SE
     - 3 = Olin Plant Refinery SE
     - 4 = Phillips Plant SE
   - b) areas
     - R1 = EXXON Refinery NE-SE
     - R2 = Shell Refinery SE
     - R3 = Atlantic Richfield Refinery SE
     - R4 = Charter International Oil Refinery SE
5. Gas processing plants
   - a) sites
     - 1 = AMOCO Hastings Gas Plant SE
     - 2 = Big Three Industries, Inc. SE
     - 3 = Tenneco Oil Co. Gas Plant SE
     - 4 = EXXON Clear Creek Gas Plant SE
     - 5 = Big Three Industries, Inc. NE
   - b) area
     No data
6. Compressor, pumping, and metering stations
   - a) sites
     - 1 = Seaway Crude Station No. 2 SW
     - 2 = Alameda Station SE
     - 3 = Meter Station SE
     - 4 = Pasadena Station SE
     - 5 = Houston Explorer Station NE
     - 6 = Englewood Station NE
     - 7 = EXXON Webster Station SE
     - 8 = Manvel Station SE
     - 9 = Unnamed Pumping Station SE
   - b) area
     - M1 = Webster Stations including EXXON, Houston Light & Power SE
7. Storage facilities
   - a) site
     Present
   - b) area
     No data
8. Platforms, offshore
   Present
9. Platform fabrication yards
   - a) sites
     - 1 = Brown and Root, Green Bayou Harbor NE
     - 2 = Platzer Shipyard NE
   - b) area
     No data
10. Dock facilities
    - a) site
      No data
    - b) area
      No data
11. Terminals
    - a) sites
      - 1 = Manchester Terminal SE

BEST COPY AVAILABLE

2 = Warren Gas Terminal SE
3 = Hess Terminal SE
4 = GATX Terminal SE
5 = Olin Terminal SE
6 = Texaco Terminal SE
7 = Paktank and GATX Galena Park Terminal SE
8 = Intercontinental Tank Terminal SE
9 = Paktank Deer Park Terminal SE
10 = GATX Terminal
11 = EXXON Terminal SE
12 = Shell Terminal SE
13 = Adams Terminal SE
14 = Gulf Oil Corp. SE
15 = ARCO SE
16 = Petro Tex SE
17 = Charter (Signal) Oil SE
18 = Petco Terminal SE

b) area

No data

12. Helicopter service

a) sites

1 = Pearland, Pearland SE
2 = Pearland, Joe Rye SE
3 = Stafford, G. H. Hart, Heliport No. 2 SW
4 = Belaire, Prudential SE
5 = Channelview, ARCO NE
6 = Houston, Total Health Care Center Pad SE
7 = Houston, Dew-Drop-In SW
8 = Houston, Vorn Sand Exterprises SE
9 = Houston, Exec Jet SE
10 = Houston, You asked for it - you got it SW
11 = Houston, Post Oak Central SE
12 = Houston, American Ship SE
13 = Houston, Ball Park SW
14 = Houston, Memorial Plaza Holiday Inn SE
15 = Houston, Hyco SE
16 = Houston, Diamond SE
17 = Houston, Village Developers SW
18 = Houston, Emergency No. 2: Houston Center NE
19 = Houston, Metro Helipad SE
20 = Houston, Ragland SE
21 = Seabrook, Hoechst Bayport SE
22 = Houston, Police Helicopter Patrol SE
23 = Houston, City Post Oak SE
24 = Houston, Citizens General Hospital NE
25 = Houston, Greenway Plaza SE
26 = Houston, G. H. Hart SW
27 = Houston, Lift Crane SE
28 = Houston, Pearce Industries SE
29 = Houston, Medical Center SE
30 = Houston, Rowan SE
31 = Houston, Regency Square Helistop SW
32 = Houston, S. & C. Construction Company, Inc. NE
33 = Houston, Owl's Roost SE
34 = Houston, Warren NE
35 = Houston, Tenneco Lab Helistop SE
36 = Houston, Tenneco Post Oak Park NE
37 = Houston, Emergency No. 1 Houston Center NE
38 = Houston, Southwest Police Station No. 4 SE

39 = Houston, NE Police Station No. 2 NE
40 = Houston, Department of Public Safety Helistop NE
41 = Houston, J. S. Dunn Helistop NE
42 = Houston, Margaret Westerman Bldg./City Hall Annex NE
43 = Houston, Houston V. A. Medical Center NE
44 = Houston, Gulf Building NE
45 = Houston, Houston Post, Helistop No. 1 NE
46 = Houston, Police Headquarters NE
47 = Houston, Powers' Helistop SW
48 = Pasadena, Police NW
49 = Pasadena, 3321 West Side SE
50 = Pasadena, Diamond SE
51 = Pasadena, Police 3321 Westside SE

b) area
No data

B. Mineral Resources

1. Oil fields
Present
2. Gas fields
Present
3. Sand, gravel, clay, dirt pits
Present
4. Sulphur wells, mines
No data
5. Geopressured - geothermal area
No data
6. Groundwater source
Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

PORT LAVACA (Beeville NE) including parts of Victoria, Jackson, Calhoun, Matagorda, Wharton and Refugio counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
    - a) Onshore
        - 1 = Texas P/L 6" NE
        - 2 = Scurlock 5" NE
        - 3 = Scurlock 4" NE
        - 4 = Permian 4" NE
        - 5 = Texas P/L 2-6" NE
        - 6 = EXXON 16" NE-NW
        - 7 = Texas P/L 8" NE
        - 8 = Scurlock 3" SW
        - 9 = Permian 6" SW
        - 10 = Permian 4" SW
        - 11 = Scurlock 2 1/2" NE
        - 12 = Permian 6" NW-NE
        - 13 = Sun 4" SW
        - 14 = Mobil 8" NW
        - 15 = Mobil 6" NW
        - 16 = Texas P/L 6" NE
        - 17 = Texas P/L 6" NE
        - 18 = Sun 4" SW
        - 19 = Sun 6" SW
        - 20 = Sun 6" SW
        - 21 = Sun 6" SW
        - 22 = Sun gathering SW
        - 23 = Scurlock 2 1/2" NE
        - 24 = Scurlock feeder NE
        - 25 = Sun gathering NW
        - 26 = Sun gathering SW
        - 27 = Texas P/L 6" NE
        - 28 = Scurlock 2 1/2" NE
        - 29 = Scurlock 3" NE
        - 30 = Texas P/L 4" NE
        - 31 = Permian 4" SW
        - 32 = Permian 4" NE
    - b) Offshore, number boxed
        - 1 = Permit number O/G-3658-4", May Pet. SE
        - 2 = Permit number O-2490-2 1/2", Enserch SE
        - 3 = Permit number O-2491-2 1/2", Enserch SE
        - 4 = Permit number O-2641-3", Enserch SE
        - 5 = Permit number O-614-3" SE
        - 6 = Permit number O/G-3272-2 7/8", Houston O/M SE
        - 7 = Permit number O-3204-4 1/2", Sun SE
        - 8 = Permit number O-2476-4 1/2", McMoRan SE
        - 9 = Permit number O-3513-6", Corpus Christi SE
        - 10 = Permit number O/G-3282-3 1/2" SE
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
    - 1 = Valero 3" SE
    - 2 = Delhi 4" NE
    - 3 = CSGP 8" NE
    - 4 = Seadrift 4" SW
    - 5 = Valero 8" SW
    - 6 = Delhi 4" SW
    - 7 = UTT 6" SW
    - 8 = UTT 10" SW
    - 9 = HNG 8" NE
    - 10 = TET 30" SW-SE-NE
    - 11 = Dow 12" SE-NE
    - 12 = Dow 16" SE-NE
    - 13 = HPL 12" NW
    - 14 = Valero 20" NE-NW
    - 15 = Dow 6" NE
    - 16 = Transco 30" NE
    - 17 = Valero 12" NE

18 = Tenneco 30" SW-NE
19 = TGP 12" NE
20 = Tenneco 8" NE
21 = HPL 4" NE
22 = Nueces 6" SW-SE
23 = Delhi 4" NE
24 = Tenneco 8" NE
25 = TGP 4" NE
26 = HPL 6" NE
27 = FGT 20" NE-SW
28 = EXXON 30", 36" SW-NW-NE
29 = Scurlock 4" NE
30 = HPL 2" SE
31 = TET 4" NE
32 = Esperanza 3 1/2" NE
33 = HNG 6" NE
34 = Texaco 10" NE
35 = TET 24" NE
36 = Delhi 12" NW-NE
37 = FGT 6", 8" NE
38 = HNG 4" NE
39 = Valero 4" and gathering NE
40 = HNG 4" NE
41 = Dow 12" NE
42 = HPL 20" NE-SE
43 = HNG 2" NE
44 = Marathon 2", 2 1/2", 3" NE
45 = HNG 12" NE
46 = Seadrift 6" SW
47 = Sun 2", 3" SW
48 = Sun 2", 3", 4 1/2", 6" SW
49 = Texaco 2" NE
50 = Valero 8" SE-NE
51 = HPL 24" NW
52 = HPL 16" NW-SW
53 = HPL 18" NW
54 = Enserch 6" NE
55 = FGT 4" NW-SE
56 = CSGP 20" NW-NE-SE
57 = Mobil 14" NE-NW
58 = HPL 12" NW
59 = TGP 4" NW
60 = UG 10" NW-NE
61 = UTT 6" NW-NE
62 = FGT 6" NW-NE
63 = Coronado 4" NE
64 = Delhi 6" NE-NW
65 = Delhi 4" and gathering NW
66 = CSGP 10" NW-NE-SE
67 = HPL 18" NW-SW
68 = CSGP 6" SE
69 = Sun 2", 4" NW-SW
70 = Delhi 8" SW-NW
71 = Tenneco 12" NW-SW
72 = EXXON 6" NW
73 = Delhi 6" NW
74 = Enterprise Resources and gathering NW-NE
75 = CSGP 16" NW
76 = Enserch 10" NW
77 = Trunkline 20" NW
78 = UG 6" NW
79 = TGP 24", 30" NW
80 = NGPL 26", 30" NW-SW
81 = Transco 26" NW-SW
82 = Enserch 16", UG 30", UTT 18", UTT 30" NW-SW
83 = FGT 20" SW
84 = UTT 4" SW
85 = Valero gathering SE
86 = Tenngas 6" NW
87 = Transco 24" NW
88 = Tenngas 6" NW
89 = FGT 6" NW-SW
90 = Tejas 3" NW
91 = Delhi 4" NW
92 = Intrastate Gathering 6" NW
93 = HPL 12" NW
94 = HNG 6 5/8" NW-SW
95 = Enserch 14" NW
96 = Tenngas 6" NW
97 = Delhi 6" and gathering NW
98 = Delhi 8" NW-SW
99 = HPL NW
100 = TGP 2-30", 24" NW-SW
101 = TGP 4" NW-SW
102 = HPL 4" NW
103 = HNG 4" NW
104 = Delhi 4" NW
105 = UG 6" NW
106 = HPL 4" SW
107 = Enserch 6" NW-SW

108 = UTT 10" SW
109 = Galaxy Energies SW
110 = Enserch 14" SW
111 = UG 16", 30" SW
112 = UG 30", UTT 30" SW
113 = HPL 10" SW
114 = Tenngas 12" SW
115 = NGPL 10" SW
116 = UTT 6" NE-NW
117 = Valero 14" SE
118 = Valero 6 5/8" SW-SE
119 = FGT 4" SE
120 = Valero 4 1/2" SE
121 = Tenneco 4" SW
122 = Valero 8" SE
123 = Valero 8" SE
124 = Valero 10" SW
125 = EXXON 4" SW-SE
126 = Valero 2", 2 1/2", 4" and gathering SW
127 = Nueces 6" SW-SE
128 = CSGP 8" NW
129 = UG 6" feeder SW
130 = Sun 4", 8 1/2" SW
131 = Unnamed SW
132 = Delhi gathering NW
133 = HNG 3 1/2" NW-SW
134 = HPL 6" NW
135 = CSGP 6" NW
136 = CSGP 2 1/2" NW
137 = Delhi 3" NW
138 = Delhi gathering NW
139 = UG feeder SW
140 = UG SW
141 = UG feeder SW
142 = HPL 16" NE
143 = Unnamed SW
144 = HPL SW
145 = Delhi gathering NW
146 = Intrastate Gathering 2" NW
147 = Intrastate Gathering 3" NW
148 = Delhi 2" NW
149 = Delhi SW
150 = Enserch 6" NW
151 = Valero 4" SW
152 = HPL 6" NW
153 = Delhi 2" NW
154 = Delhi 2" NW
155 = HPL 4" NE
156 = Unnamed NE
157 = Connection UTT 10" SW
158 = UTT 10" SW
159 = HPL 4" NE
160 = Coronado 2" SW
161 = Valero feeders SW
162 = Nueces 6" SW
163 = Valero 4" SW
164 = Delhi NW
165 = HPL 3", 2 1/2" NE
166 = Valero 4 1/2" SW-SE
167 = TET feeder NE
168 = UTT feeder NW
169 = Valero 3" SW
170 = Valero 2" SW
171 = Delhi gathering NW
172 = Delhi gathering NW
173 = CSGP 2 1/2" NW
174 = Scurlock gathering NE
175 = HNG 4" NE
176 = HNG 4" NE
177 = CSGP 6" NW
178 = Halbouty 2 abandoned lines NE
179 = Halbouty 10 lines, 3 active NE
180 = Halbouty 2 lines, one active 1 not active NE
181 = HNG 6" NE
182 = Delhi NW
183 = HPL 6" NW
184 = HPL 6" NW
185 = Delhi gathering NW
186 = HPL 12" NW-NE
187 = Sun gathering SE
188 = Delhi NW
189 = CSGP 4" SE
190 = Valero 10" SW
191 = Valero 8" SE-NE
192 = Valero 3" SE
193 = Southern Gas 4" SE
194 = Southern Gas 4" SE
195 = UTT feeder NW
196 = Dow feeder NE

b) Offshore, number circled
1 = Permit number G-ME-3306-2 1/2" SE

2 = Permit number G-3242-16", Dow SE
3 = Permit number G-79-298-2 1/2" Genesis Petroleum SE
4 = Permit number G-4060-4", May Pet. SE
5 = = Permit number G-2493-12", Enserch SE
6 = Permit number G-79-266-2 1/2", Integral Energy SE
7 = Permit number G-3659-4", May Pet. SE
8 = Permit number G-3130-2 7/8", King SE
9 = Permit number G-2604-3", Enserch SE
10 = Permit number G-3022-34, N. A. Royalties SE
11 = Permit number G-3640-2", Integral Energy SE
12 = Permit number G-3639-2 1/2", Integral Energy SE
13 = Permit number G-4070-4", Integral Energy SW
14 = Permit number G-3711-4", EXXON SE
15 = Permit number G-677-2", G-1521-2" SE
16 = Permit number G-1615-2 1/2" SE
17 = Permit number G-1934-4", EXXON SE
18 = Permit number G-1034-2", Southern Mineral SW
19 = Permit number G-1203-2 1/2", Cities Service SW
20 = Permit number G-1165-2 1/2", Cities Service SW
21 = Permit number G-3511-20", HPL SE
22 = Permit number G-3923-2-3 1/2", Superior SE
23 = Permit number G-3591-2-3", Mitchell SE
24 = Permit number G-610-8", Valero 79-207-8", Valero SE
25 = Permit number G-3170-6" SE
26 = Permit number G-3283-8" SE
27 = Permit number G-3283-6" CSGP SW
28 = Permit number G-80-110-6" Nueces SW-SE

3. Nodes (N) of offshore pipelines - oil and gas
   Labeled clockwise from north by permit number
   N1 includes, in order SE
      Permit number G-1766-3" Valero
      Permit number G-4034-3" Valero
      14 Unnumbered Lavaca gathering
      Permit number G-3702-2-7/8"
   N2 includes, in order SE
      Permit number O/G-2555-4"
      Unnumbered 4"
      Permit number G-338-4"
      Permit number O-1682
      Unnumbered unsized line
4. Refineries
   a) site
      No data
   b) area
      No data
5. Gas processing plants
   a) sites
      1 = HNG Victoria Gas Plant NW
      2 = Bobby M. Burns Estate Una West Gas Plant NW
      3 = EXXON Heyser Gas Plant SW
      4 = Alcoa Gas Plant (closed) SW
      5 = UG Edna Gas Plant NW
      6 = Vandervilt Gas Plant NW

7 = EXXON Kellers Bay Gas Plant SW
8 = East McFadden Gas Plant SW
9 = Texaco Blessing Plant NE
10 = Blessing HRU Plant NE
11 = Tenneco Leabo Plant NE
12 = Huber W. Lucky Gas Plant NE
13 = Oyster Lake Plant SE
14 = Monsanto El Maton Plant shut down

b) area
No data

6. Compressor, pumping, and metering stations
a) sites
1 = HPL Meter Station No. 6 NW
2 = Magnolia Beach Compressor Station SW
3 = Swan Lake Station SW
4 = UG Meter Station NE
5 = East Mauritz Station NE
6 = Midfield Station NE
7 = Olivia Compressor Station SE
8 = Carancahua Compressor Station SE
9 = Sand Point Compressor Station SW
10 = Point Comfort Station SW
11 = Blessing City Gate Station NE
12 = Lovaca Blessing Station NE
13 = Blessing Station NE
14 = Foley Addition Gate Station SE
15 = Palacios City Gate Station 14 SE
16 = Markham Station NE
17 = Mauritz Station NE
18 = Placedo Station SW
19 = Francitas Station NE
20 = Heyser Station SW
21 = Barge Canal Station SE
22 = Unnamed Station NE
23 = Unnamed Station NE
24 = Unnamed Station NE
25 = Unnamed Station SW
26 = Unnamed Station SW
27 = Unnamed Station NE

b) area
No data

7. Storage facilities
a) site
Present
b) area
No data

8. Platforms, offshore
No data

9. Platform fabrication yards
a) site
No data
b) area
No data

10. Dock facilities
a) site
No data
b) area
No data

11. Terminals
a) site
No data
b) area
No data

12. Helicopter service
a) site
1 = Victoria - Citizens Memorial Hospital NW
b) area
No data

B. Mineral Resources

1. Oil fields
Present

2. Gas fields
Present

3. Sand, gravel, clay, dirt pits
Present

4. Sulphur wells, mines
No data

5. Geopressured - geothermal area
No data

6. Groundwater source
Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

PORT MANSFIELD QUADRANGLE (Brownsville N/2, N/2) including parts of Kenedy, Willacy, Hidalgo and Brooks counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
    - a) Onshore
        - 1 = EXXON 4", 6" NW
    - b) Offshore, number boxed
        - 1 = Permit number O/G-3115-8 5/8" Mobil SE
        - 2 = Permit number O-2452 NE
        - 3 = Permit number O-2855-6 5/8" Kilroy NW
        - 4 = Permit number O-2693-2 7/8" Kilroy NE
        - 5 = Permit number O-2933-4 1/2" SE
        - 6 = Permit number O-2933-4 1/2" Mobil SE
        - 7 = Permit number O-2933-4 1/2-2 Mobil SE
        - 8 = Permit number O-2547-2 3/8", H&H NE
        - 9 = Permit number O-2694-2 7/8", Kilroy NE
        - 10 = Permit number O/G-3565-2 3/4", H&H NE
        - 11 = Permit number O-2453-2 7/8 McMoRan NE
        - 12 = Permit number O-2454-2 7/8" McMoRan NE
        - 13 = Permit number O/G-3115-8 5/8" Mobil SE
2. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
    - a) Onshore
        - 1 = Transco 10" SW
        - 2 = TET 30" NW-SW
        - 3 = Tejas 8" SW
        - 4 = NGPL 16" NW
        - 5 = EXXON 14" NW-SW
        - 6 = TGP 8" SW
        - 7 = EXXON 6" NW
        - 8 = EXXON 6" NW
        - 9 = NGPL 10" SW
        - 10 = NGPL 12" SW
        - 11 = EXXON 10" NW-SW
        - 12 = EXXON 14" NW
        - 13 = Superior 2", 4" SW
        - 14 = EXXON gathering 4" SW
        - 15 = EXXON gathering 10" SW
        - 16 = EXXON 6" SE
        - 17 = Tejas 4" SW
        - 18 = Tejas 3" SW
    - b) Offshore, number circled
        - 1 = Permit number G-1964-3" Occidental Pet. NE-SE
        - 2 = Permit number G-865-3" McWood NE
        - 3 = Permit number G-2419-2 3/8" FGT NE
        - 4 = Permit number G-2918-2 3/8" NE-SW; G-3429-2-2 3/8" H&H NE
        - 5 = Permit number G-3019-4 South Texas Petroleum NE
3. Nodes (N) of offshore pipelines - oil and gas
    - None
4. Refineries
    - a) site
        - No data
    - b) area
        - No data
5. Gas processing plants
    - a) site

1 = North Texas LPG Corp, La Sal Vieja Gas Plant SW
b) area
No data
6. Compressor, pumping, and metering stations
a) sites
  1 = Stillman Station NW
  2 = Julian Station NW
  3 = Candelaria Station NW
  4 = Unnamed Station SW
b) area
No data
7. Storage facilities
a) site
Present
b) area
No data
8. Platforms, offshore
No data
9. Platform fabrication yards
a) site
No data
b) area
No data
10. Dock facilities
a) site
No data
b) area
No data
11. Terminals
a) site
No data
b) area
No data
12. Helicopter service
a) site
No data
b) area
No data

B. Mineral Resources
1. Oil fields
Present
2. Gas fields
Present
3. Sand, gravel, clay, dirt pits
Present
4. Sulphur wells, mines
No data
5. Geopressured - geothermal areas
  1 = Hidalgo fairway, Frio formation SW-SE
  2 = Armstrong fairway, Frio formation NW
  3 = Unidentified fairway NE-SE
6. Groundwater source
Present

MAP NARRATIVE DETAIL -- OIL, GAS INFRASTRUCTURE, MINERAL RESOURCES

SAN ANTONIO BAY QUADRANGLE (Beeville SE) including parts of Aransas, Calhoun, Refugio, and Victoria counties

A. Oil and Gas Infrastructure

1. Oil pipelines: single dashed line, one pipeline; double-width dashed line, two or more pipelines
   a) Onshore
      - 1 = Sun 4" gathering SW
      - 2 = Sun 6" SW
      - 3 = Sun 10" NW-SW
      - 4 = Scurlock 3" NW-NE
      - 5 = Permian 4" NW
      - 6 = Scurlock 3" NE
      - 7 = EXXON 16" NW
      - 8 = Sun 6" NW
      - 9 = Permian feeder NW
      - 10 = Scurlock 3" NW

   b) Offshore, number boxed
      - 1 = Permit number 0/G-79-1150-3", Getty SW
      - 2 = Permit number 0-80-085-8", Tenneco SW
      - 3 = Permit number 0-2025-2 7/8", Getty SW
      - 4 = Permit number 0/G-4151-6", Corpus Christi SW
      - 5 = Permit number 0-2639-3", Monsanto NE
      - 6 = Permit number 79-177-6", Corpus Christi SW
      - 7 = Permit number 0/G-3649-2 1/2", Mitchell SW
      - 8 = Permit number 0-80-212, 12", 24", Southern Natural SW
      - 9 = Permit number 0-80-166- 4 1/2", Getty SW
      - 10 = Permit number 0-3824-2 1/2", Victoria NW
      - 11 = Permit number 0-2822-2 1/2", Texas Oil & Gas NW
      - 12 = Permit number 0-926-2", Enserch NW
      - 13 = Permit number 0/G-3424-3 1/2", G. R. Brown NW
      - 14 = Permit number 0-3220-4 1/2", Cities Service NW
      - 15 = Permit number 0-1352-2", Cities Service NW
      - 16 = Permit number 0-2290-2", Getty NW
      - 17 = Permit number 0-2420-2", 3", Getty NW
      - 18 = Permit number 0/G-3966-4 1/2", Cities Service NW
      - 19 = Permit number 0/G-80-212-12", 24", Southern Natural SW
      - 20 = Permit number 0/G-4046-6 5/8", 10 3/4", Corpus Christi NE
      - 21 = Permit number 0/G-4047-6 5/8", Corpus Christi SW
      - 22 = Permit number 0/G-3906-2 7/8", Utah Int. NE
      - 23 = Permit number 0/G-3797-2 1/2", Utah Int. NW
      - 24 = Permit number 0-2638-3", Monsanto NE
      - 25 = Permit number 0-3512-6", El Gordo Products Pipe Line NE

26 = Permit number O/G-4139-16", Houston O/M NE
27 = Permit number O/G-4138-6", Houston O/M NE
28 = Permit number O-80-085-8", Tenneco SW
29 = Permit number O/G-3479-2 7/8", Houston O/M NW
30 = Permit number O/G-4158-2 1/2", Neumin
31 = Permit number O/G-3333-2 7/8", Houston O/M NW
32 = Permit number O/G-4059-4 1/2" SW
33 = Permit number O/G-4059-2", Cities Service NW

7. Gas pipelines: single line, one pipeline; double-width line, two or more pipelines
   a) Onshore
      1 = Tenneco 12" SW
      2 = NGPL 8" SW
      3 = HNG 12" SW
      4 = HNG 12" SW
      5 = TET 30" SW
      6 = Mitchell 10" SW
      7 = HPL 6" NW
      8 = NGPL 6" NW
      9 = Cities Service 6" NW
      10 = TET 30" NW
      11 = Energy 6" NW
      12 = NGPL 10" NW
      13 = Tenneco 30" NW
      14 = HPL 12" NW
      15 = FGT 20" NW
      16 = EXXON 30", 36" NW
      17 = Delhi 4 1/2" NW
      18 = Enserch 6" NW
      19 = UG NW
      20 = Seadrift 4" NW
      21 = Dow 4" NE
      22 = UTT 10" NW
      23 = NGPL 8" NW
      24 = Valero 4 1/2" NW
      25 = Valero 8" NW
      26 = Valero 8", Texaco NW
      27 = UTT gathering NW
      28 = Delhi 4" NW
      29 = Dow 4" NW
      30 = R. B. Mitchell 4" NE
      31 = NGPL 4" NW
      32 = Dow 16" NE
   b) Offshore, number circled
      1 = Permit number G-80-085-8", Tenneco SW
      2 = Permit number G-3971-3", Mitchell SW
      3 = Permit number G-2542-4 1/2", ARCO SW
      4 = Permit number G-2925-10" SW
      5 = Permit number G-1655-8", HPL NW
      6 = Permit number G-3999-2 1/2", Cities Service SW
      7 = Permit number G-1115-4", Tidewater SW
      8 = Permit number G-1993-6", EXXON NW
      9 = Permit number G-4009-4 1/2" SW
      10 = Permit number G-3518-3 1/2" NE
      11 = Permit number G-79-297-2 1/2", Genesis Pet. NW
      12 = Permit number G-3242-16", Dow NE
      13 = Permit number G/ME-3306-2 1/2", Valero NE
      14 = Permit number G-3450-4 1/2", McMoRan SW
      15 = Permit number G-3452-4 1/2", McMoRan SW
      16 = Permit number G-3453-3", McMoRan SW
      17 = Permit number G-3454-6", McMoRan SW
      18 = Permit number G-3226-10 3/4", Corpus Christi SW
      19 = Permit number G-4010-10", Corpus Christi SW

20 = Permit number G-3286-10 3/4", Corpus Christi SW
21 = Permit number G-2926-10", Corpus Christi SW
22 = Permit number G-2927-8 5/8", Corpus Christi SW
23 = Permit number 12", HPL NW
24 = Permit number G-3511-20", HPL NE
25 = Permit number G-3923-2-3 1/2", Superior NE
26 = Permit number G-3672-12", Valero gathering NE
27 = Permit number G-3170-6", Superior NE
28 = Permit number G-3673-12", Valero gathering NE
29 = Permit number G-3477-3", Valero NW
30 = Permit number G-3477-8", Valero NW
31 = Permit number G-2132-4" NW
32 = Permit number 10" Mitchell NW
33 = Permit number 10 5/8" Mitchell SW
34 = Permit number 12" Tenneco SW
35 = Permit number G-2179-3" HPL SW
36 = Permit number G-2179-3" HPL SW
37 = Permit number G-690-12" HWG SW
38 = Permit number G-1431-4 1/2" SW
39 = Permit number G-3632-2-2 1/2" NW
40 = Permit number G/ME-3748-6" NW
41 = Permit number G-3835-4" Mitchell NW
42 = Permit number G-3448-30" TCI NW
43 = Permit number Getty NW
44 = Permit number Marathon NW
45 = Permit number Getty NW

3. Nodes (N) of offshore pipelines - oil and gas
Labeled clockwise from north by permit number
N1 includes, in order SE
Permit number No number 8" Valero
Permit number G-1339-2" Texaco
Unidentified
Permit number G-3477-3" Valero
Permit number G-3477-3" Valero
Permit number G-3477-3" Valero
Permit number G-3477-5" Tidewater

4. Refineries
a) site
No data
b) area
No data

5. Gas processing plants
a) sites
1 = Hunt Zoller Gas Plant NW
2 = Cities Services San Antonio Bay Gas Plant NW
3 = Cities Services San Antonio Bay Central Separation Plant NW
b) area
No data

6. Compressor, pumping and metering stations
a) sites
1 = Tivoli Station NW
2 = Unnamed Station NE
3 = Unnamed Station on Aransas Refuge
b) area
No data

7. Storage facilities
    - a) site
        - Present
    - b) area
        - No data

8. Platforms offshore
    - Present

9. Platform fabrication yards
    - a) site
        - No data
    - b) area
        - No data

10. Dock facilities
    - a) sites
        - D1 = Scurlock Station and Dock facilities NE
        - D2 = Baroid Dock
    - b) area
        - No data

11. Terminals
    - a) site
        - No data
    - b) area
        - No data

12. Helicopter service
    - a) sites
        - 1 = Port O'Connor, Port O'Connor Pirate NE
        - 2 = Port O'Connor, Baroid Dock Area NE
    - b) area
        - No data

B. Mineral Resources

1. Oil fields
    - Present
2. Gas fields
    - Present
3. Sand, gravel, clay, dirt pits
    - No data
4. Sulphur wells, mines
    - No data
5. Geopressured - geothermal area
    - No data
6. Groundwater source
    - Present

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO. FWS/OBS-82/17 *

2. MMS 84-0005 *

3. Recipient's Accession No.

4. Title and Subtitle
Texas Barrier Islands Region Ecological Characterization Atlas:
Minerals Resources and Selected Oil and Gas
Infrastructures Narrative

5. Report Date
February 1984

6.

7. Author(s)
Clarissa T. Kimber, Kenneth L. White, Fred S. Hendricks

8. Performing Organization Rept. No.

9. Author's Affiliation:

Texas A and M University
F.E. Box H
College Station, TX 77843

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.
(C) 14-16-0009-79-126
(G)

12. Sponsoring Organization Name and Address U.S. Department of the Interior

U.S. Fish and Wildlife Service
Division of Biological Services
National Coastal Ecosystems Team
Washington, DC 20240

Minerals Management Service
Gulf of Mexico OCS Regional
Office
Metairie, LA 70002

13. Type of Report & Period Covered

14.

15. Supplementary Notes

*Minerals Management Service Report 84-0005

16. Abstract (Limit: 200 words)

This report is a descriptive explanation of data presented on 16 maps (maps not available from NTIS) produced at a scale of 1:100,000 for the Texas Barrier Islands Region from the eastern end of East Bay, Chambers County, Texas, to the Texas-Mexico border. Topics mapped include pipelines, refineries, gas processing plants, oil and gas storage facilities, helicopter ports, and dock (port) facilities.

17. Document Analysis a. Descriptors

Oil Storage, Petroleum Pipelines, Petroleum Refineries, Port Facilities

b. Identifiers/Open-Ended Terms

Texas Barrier Islands

18. Availability Statement

Unlimited

Unclassified

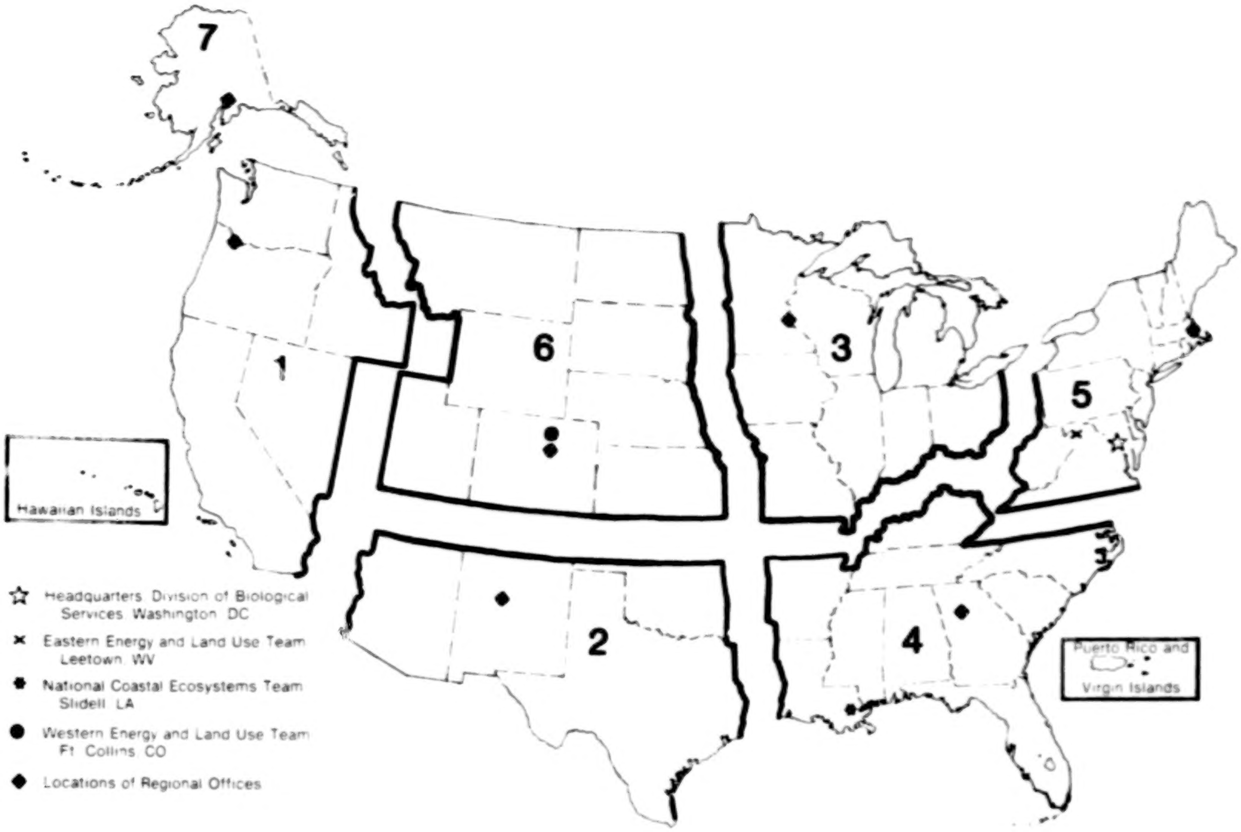
85

Unclassified

U.S. GOVERNMENT PRINTING OFFICE : 1984 — [illegible]

97

BEST COPY AVAILABLE


7
1
6
3
5
2
4
3
Hawaiian Islands
Puerto Rico and Virgin Islands
☆ Headquarters, Division of Biological Services, Washington, DC
× Eastern Energy and Land Use Team Leetown, WV
● National Coastal Ecosystems Team Slidell, LA
● Western Energy and Land Use Team Ft. Collins, CO
◆ Locations of Regional Offices

REGION 1
Regional Director
U.S. Fish and Wildlife Service
Lloyd Five Hundred Building, Suite 1692
500 N.E. Multnomah Street
Portland, Oregon 97232

REGION 2
Regional Director
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, New Mexico 87103

REGION 3
Regional Director
U.S. Fish and Wildlife Service
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

REGION 4
Regional Director
U.S. Fish and Wildlife Service
Richard B. Russell Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

REGION 5
Regional Director
U.S. Fish and Wildlife Service
One Gateway Center
Newton Corner, Massachusetts 02158

REGION 6
Regional Director
U.S. Fish and Wildlife Service
P.O. Box 25486
Denver Federal Center
Denver, Colorado 80225

REGION 7
Regional Director
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, Alaska 99503

87

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

88

END

05-29-85